LAIRD SOLUTION Flying Scale · 1958 NATIONALS

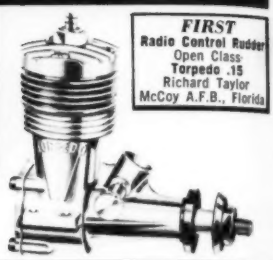
MODEL AIRPLANE NEWS

NOVEMBER 1958—35 CENTS

Curtiss F7C-1

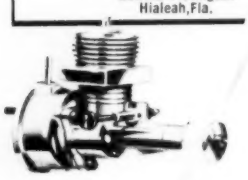
TORPEDO, FURY ENGINES

SWEEP THE NATIONALS for 9th Consecutive Year WITH 16 FIRST PLACES

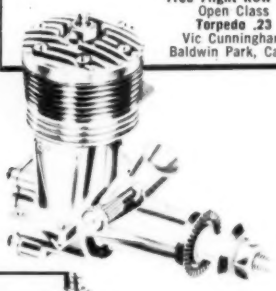


FIRST
Radio Control Rudder
Open Class
Torpedo .15
Richard Taylor
McCoy A.F.B., Florida

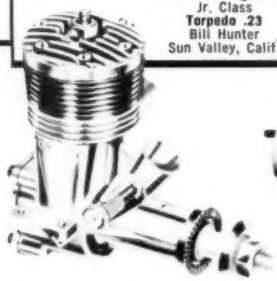
FIRST
Control Line ½A Speed
Sr. Class
Sky Fury .049 (Modified)
Edward Pilkington
Hialeah, Fla.



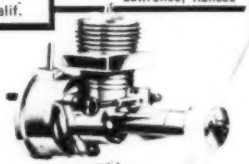
FIRST
Free Flight ROW Gas
Open Class
Torpedo .23
Vic Cunningham
Baldwin Park, Calif.



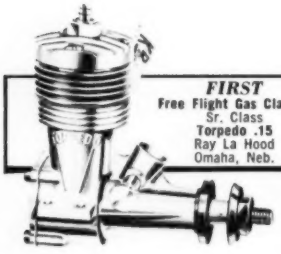
FIRST
B C Free Flight Gas
Jr. Class
Torpedo .23
Bill Hunter
Sun Valley, Calif.



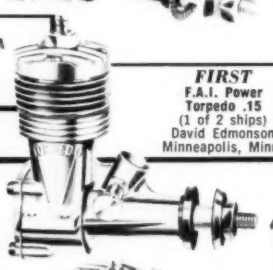
FIRST
Free Flight Flying Scale
Jr.—Sr. Class
Sky Fury .049
Ed Christenson
Lawrence, Kansas

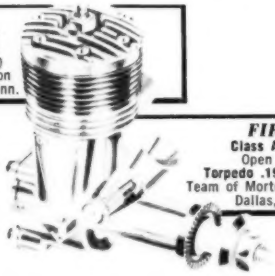


FIRST
Free Flight Gas Class A
Sr. Class
Torpedo .15
Ray La Hood
Omaha, Neb.

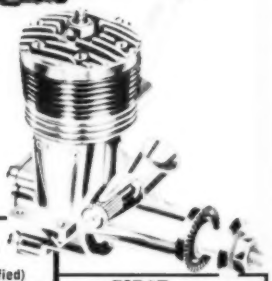


FIRST
F.A.I. Power
Torpedo .15
(1 of 2 ships)
David Edmonson
Minneapolis, Minn.



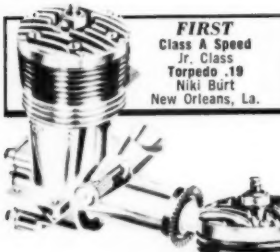


FIRST
Class A Speed
Open Class
Torpedo .19 (Modified)
Team of Morton and Grogan
Dallas, Texas

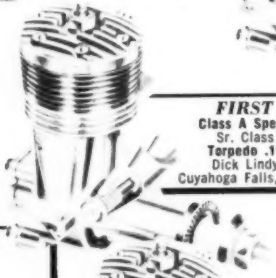


FIRST
Free Flight ROW Gas
Jr. Class
Torpedo .23
Bill Hunter
Sun Valley, Calif.

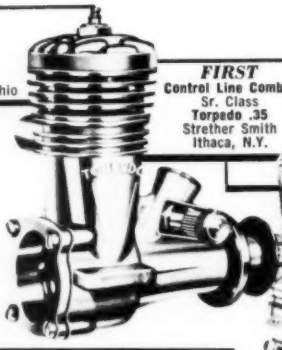
FIRST
Class A Speed
Jr. Class
Torpedo .19
Niki Burt
New Orleans, La.



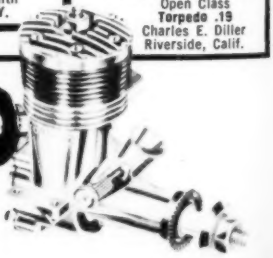
FIRST
Class A Speed
Sr. Class
Torpedo .19
Dick Lindy
Cuyahoga Falls, Ohio



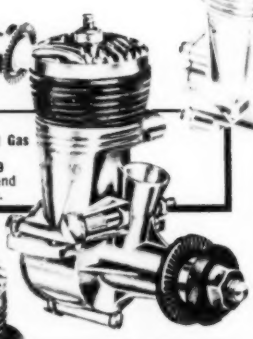
FIRST
Control Line Combat
Sr. Class
Torpedo .35
Strether Smith
Ithaca, N.Y.

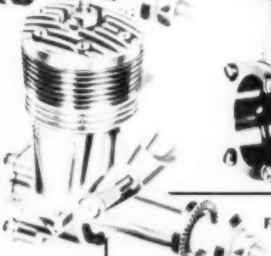


FIRST
Free Flight Gas Class A
Open Class
Torpedo .19
Charles E. Diller
Riverside, Calif.



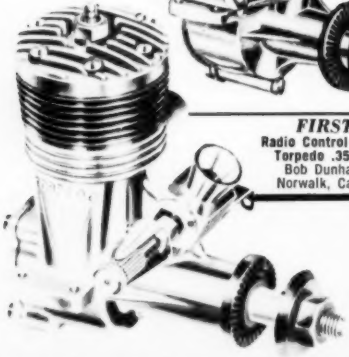
FIRST
B C Free Flight Gas
Sr. Class
Torpedo .29
Charles Gilliand
Tulsa, Okla.





FIRST
Free Flight Gas Class A
Jr. Class
Torpedo .19
Gary Dunkan
Van Nuys, Calif.

FIRST
Radio Control Multi
Torpedo .35 RC
Bob Dunham
Norwalk, Calif.



Many thanks to the champions who made this, our 9th consecutive championship year, possible. We are genuinely grateful to the modelers who chose to use K & B Allyn products and that their choice helped them to win!

See our next ad for complete information about the other winners who used K & B Allyn products.

K&B Allyn

K&B ALLYN COMPANY • 5732 DUARTE STREET • LOS ANGELES 58, CALIFORNIA

Whee! Look at 'em Fly!

Control handle and lines included on all Ready-to-Fly Models

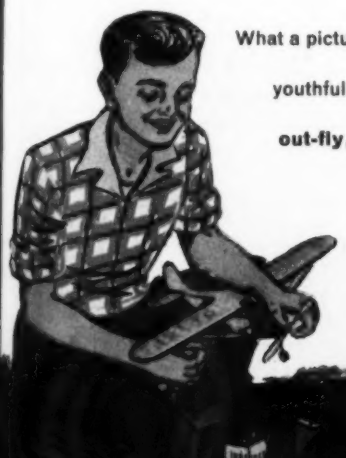
They're SKY-HIGH in Design, Flyability and Value!

COMMENDED BY THE CONSUMER SERVICE BUREAU OF PARENTS' MAGAZINE AS ADVERTISED THEREIN

Comet

Ready-to-Fly

U-Control ALL-PLASTIC GAS MODELS



What a picture they make—Comet's 4 big-'n-beautiful Ready-to-Fly U-Control Gas Models zooming through the sky—while their youthful "pilots" get the thrill of their lives putting them through their paces! These all-plastic beauties were **deliberately designed** to **out-fly, out-value** and **out-sell** them all—and they're doing just that! Young Americans want **action** these days—and they **get it** in Comet's Ready-to-Fly Gas Models. Stunningly packaged in richly color-printed chests—complete with powerful "OK" Cub fast-starting engines, control handles and lines—and they cover every popular price range from $7.95 to $14.95!

Upper left: True-to-Scale **PIPER TRI-PACER**, 11½" long—**PLM-30—$7.95**; Upper right: True-to-Scale **MUSTANG F-51**, 13¹⁵⁄₁₆" long—**PLM-48—$12.95**; Center: the magnificent **STARFIGHTER**, 19⅝" long—**PLM-40—$14.95**; Lower left: swept-wing **SABRE 44**, 14¼" long—**PLM-44—$9.95**.

COMET MODEL HOBBYCRAFT, INC.

Send for these 2 **BIG COMET BOOKS**:
The New 1958 **Comet Catalog** 20c: shows hundreds of models in color. **20-Page Book**—"What Makes An Airplane Fly"—lots of pictures and diagrams—printed in 2 colors—25c.

501 W. 35th St., Dept. 98,
Chicago 16, Ill.

P. G. F. CHINN

Foreign Notes

GREAT BRITAIN

Increasing quantities of American model merchandise are now becoming available in Britain following recent relaxations in import restrictions. Before WW 2, most of the kits and nearly all the engines sold in the British Isles, came from the United States, but, since the war, government regulations concerning the movement of hard currency, have prevented such imported merchandise being offered via normal retail channels.

Discounting plastics, of which fair quantities are now available, imports from the U.S. consist mainly of engines, plus a few of the more advanced types of kits. Motors, so far, have included Fox and Veco stunt engines in the 19, 29 and 35 displacements, various K&B Allyn marine types and the Cox Pee Wee. The addition of British purchase-tax, import dues and handling charges, have raised the prices of these motors 50 to 90% above U.S. retail prices, but, despite this, the motors are selling steadily.

AUSTRALIA

Some remarkable performances in the three Australian team-race classes have lately been put up by an Adelaide modeler, Kevin W. Green, who now holds the Australian national records in all three classes.

Main item of interest is his performance in the .30 cu. in. class. His record time for this is 7 min. 27.6 sec. for the ten miles on 60 ft. lines. Motor used is an O.S. Max 29, running on a special fuel blend giving over 70 laps at better than 90 mph. This, of course, means only one pit stop in a 10 mile, 140 lap race. Another contributing factor is the clean and very light model design used which gives noticeably improved acceleration over other models similarly powered.

For the .15 class, Green is using a Max 15 and, again with his special fuel mix, he is getting 60 laps on 52½ ft. lines. His Australian record time of 9:15.4 is a good way outside the best .15 class times recorded in England with Oliver Tigers, but he is, nevertheless, beating the hitherto unassailable Olivers in Australia. In the over .30 cu. in. class, Green's record stands at 8:26.4, this time with a Max 35 motor. All the motors are stock.

INDONESIA

Very occasionally, we have news of modeling from the islands of Indonesia and, particularly, from the densely populated island of Java where there are now at least ten model clubs located in and around the principal cities, including Djakarta, Jogjakarta, Surabaja and Malang. Our latest report comes from Mr. R. Noer Singgih, leader of the Malang Club.

There was a certain amount of modeling in Java prior to the Dutch withdrawal from Indonesia, but, since the granting of independence, the Indonesians have apparently made considerable progress on their own account, aided by the Indonesian Air Force. Evidently as part of a program to interest and educate a section of the population in aviation matters, the formation of clubs was undertaken with the direct assistance of the Indonesian Air Force, through whose offices modeling materials, such as balsa, cement and dope,

(*Continued on page* 40)

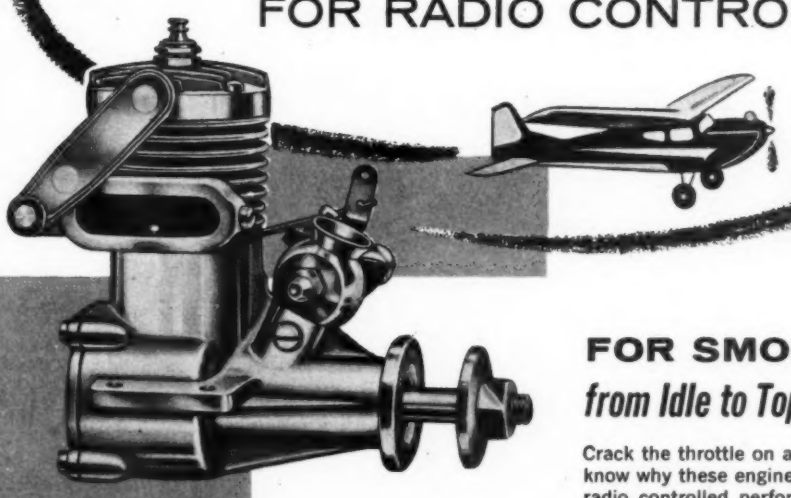
FLASH! Eddie May, Jr. of Durham, N.C., places FIRST in Junior Stunt Event at 1958 Nationals flying Veco Thunderbird powered by Veco 100 series .35 engine. **FLASH!**

You're A Sure Winner!

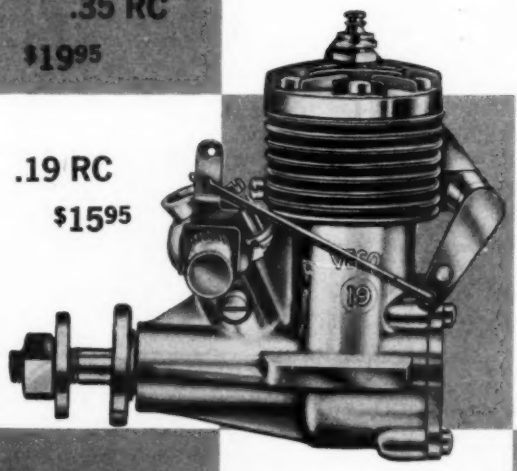
WITH NEW

VECO Hi/Lo ENGINES

FOR RADIO CONTROL



.35 RC
$19.95



.19 RC
$15.95

FOR SMOOTH POWER
from Idle to Top RPMs without a falter

Crack the throttle on a new Veco Hi/Lo engine and you'll know why these engines are bound to set new records for radio controlled performance. With direct linkage to the throttle lever and sure fore-and-aft motion, the die-cast exhaust valve operates instantaneously — your engine spurts to life without lag, reaches top RPM without power-killing back pressure. Cut the throttle — your Hi/Lo drops to a smooth idle with positive adjustable throttle stop for idle position. Here's an engine that gives you everything you want for championship performance!

Veco Hi/Lo engines are champion-built, too, with exclusive high quality features, including:

1. New better-balanced improved hardened steel crankshaft
2. Special lo-friction hi-speed bronze bearing
3. New type steel cylinder sleeve for higher performance
4. Square crankshaft porting for maximum efficiency
5. New improved steel spray bar provides wider range of needle valve adjustment.

Exhaust Control and Throttle Control

Champions like Bob Dunham and Howard Bonner insist both exhaust control and throttle control are necessary to obtain low idle and top performance with absolute reliability under all climatic conditions.

Only VECO Hi/Lo Gives You Both Controls!

VECO products

BURBANK, CALIFORNIA

30th Year of Publication

M.A.N.
MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

NOVEMBER 1958 Vol. LIX—No. 5

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by William Winter

► For MAN at Work, the 28th Nationals was the 1954 Glenview Nats revisited. Faded circles on aprons adjoining the work hangar still showed and you had only to blink an eye to see again the incredible Saturday and Sunday morning flying there in 1954. PAA endurance (a Beam going round-and-round), ukie scale (McCroskey and that Mustang), Tom Dean with his beautiful crop duster (it won again this year), combat, speed. You could sit in the middle of it all, if you watched the lines and kept your head down, only a few Ram Rod spans from anything. But now it was 1958, a good, orderly, quiet, average Nats, scattered all over the station.

Funny how little things change everything. Take free flight. Class A day in '54 doubled with Nordic, another popular event, in a narrow, cow pasture fenced by tall corn. You sat by a hunk of plywood on which guys scrambled to put down screaming crates for ROG's. The uproar was frightening and you didn't dare move. Nordic launchers ran through the crowd, bikes ran over towlines. Processing lines were 200 feet long at midday.

As Gilliam reports pictorially, '58 was a VTO Nats. A mole's eye view showed dozens of crates being put down on their tails, like rockets at Canaveral, and they shot straight up into the sky. It was as if the years between the Zipper and the Satellite had vanished like projector slides. For the free flight revolution between '54 and '58 is no more marked despite only four short years.

When the Nats events are spread out as they were in '58, you drift from combat to radio, from flying-scale free flight to something else, and eventually back to the market place at the work hangar where, night and day, you stand the best chance to meet people.

You say hello to Joe Bilgri for example and with him is Hank Cole, Manny Andrade, and Joe Foster and you think, wow, what a Wakefield team, standing on a six-foot circle and there is a contest in England and eliminations have been held! Or Aldrich with his quick sound resumes of everything in the place, or Duke Fox, or Johnny Brodbeck, or Hi Johnson, or Gil Henry, all engine manufacturers who vie with potent mills in the same events. The way to see a Nats is with your ears.

C.O. Wright, the grand "old" man of model aviation, sitting on a wood stool in the (*Continued on page 7*)

NEXT MONTH'S COVER Vought Crusader

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PLANE ON THE COVER

The Curtiss F7C-1, or Seahawk, was one of the prettiest of shipboard fighters. Powered by the Pratt & Whitney 425 hp Wasp engine, it differed from other Hawks in that it had a swept-back top wing, different landing gear, and other innovations. It probably was somewhat slower than its Army brother, the P-6, which did 178 mph.

LOOK! LOOK! LOOK!

it's the famous . . .

OK CUB .049A

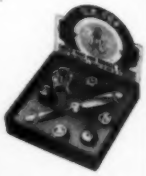
now only $3.95

***Complete with* FUEL-VUE NYLON TANK**
HIGH IMPACT PROPELLER • SPIN STARTER

Yes! Here is the engine value of the year. It's the genuine OK Cub .049A engine at a never before heard of price. Our new attractive package saves you money. No need now for you to have any engine but the best. Ideal for both free and control line flight. Here are just a few of the exclusive OK features:

● Special Bearing Quality Die Cast Crankcase ● Hardened Aircraft Steel Crankshaft ● Fuel-vue Nylon Tank ● Patented 360° Porting ● Replaceable Glow Plug

NEW LOW PRICES—BETTER VALUES THAN EVER ★ ★ ★

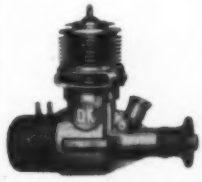


"OK" CUB .049B Power Kit
$3.95

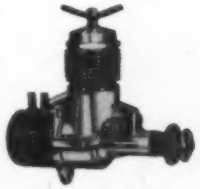
"OK" CUB .049B
$4.95

"OK" CUB .074 **$5.45***
"OK" CUB .099
$5.95*

"OK" CUB .14 **$6.95***
"OK" CUB .19
$7.95



"OK" CUB .29 **$11.95**
"OK" CUB .35 **$12.95**



"OK" CUB DIESELS
.049 **$6.95**
.075 **$7.95**

OK GLOW FUEL

Specifically developed to give maximum life and performance with all OK engines (and other engines of similar compression ratios), OK Glow Fuel is a scientifically compounded methanol-base fuel, heavily fortified with nitrates. High heat resistant silicone lubricants won't thin under engine heat.

50c ½ PT. **85c** PT. **$1.50** QT.

OK Diesel Fuel for CUB Diesels . . Pint 85¢

OK GLOW PLUGS

"OK" Glow Plugs have a superior platinum glow element for fast starts, ease of acceleration, highest speed. Available in two sizes.

G-2 for Cubs 19, 29, 35 and all other makes using 1/4-32 long type plugs.
G-3 for all Cubs .039 to .14 and all other makes using 1/4-32 short type plug.

59¢

OK ACCESSORY SET

Just the right fuel . . . just the right accessories for satisfactory engine operation! Contains:

- ½ pint OK Glow Fuel
- 1 filler spout with tubing
- 1 set battery leads assembled, soldered; battery connection and glow plug clip
- 1 comb. plug wrench and screw driver

$1.39

HERKIMER TOOL & MODEL WORKS, INC.

68 HARTER STREET HERKIMER, NEW YORK

MAN at Work

(*Continued from page 4*)

middle of a runway waiting a second flight in scale. Had watched him fly a Fairchild 24, with the younger contestants that came with him, telling him what to do, how not to make mistakes. Pointing and holding paper streamers to show the wind. For him to make a good flight was more important to them than winning a Nats Championship. C. O. is a cagey competitor, boys, but little things like this make you feel warm inside. Sitting there, an Antoinette of 1909 climbs steadily, high down-wind and C. O., wonders how the flier licked that scale airfoil with its strange characteristics. Hubert Latham. The man who flew this thing, the real one, before any of us, except C. O., then a boy. He was a trolley car motorman, muses C. O., with a year to live. Latham preferred a more exciting exit, learned to fly, and hired out as the pilot of the Antoinette which killed most of the people daring enough to fly it. It didn't kill Latham. That required a rhino in Africa, many many years later.

Serious things, Dunham giving you the inside dope on the modified Astro Hog and what it is like to fly it, and crazy things like the question overheard, "What has four feet, feathers, weighs 1,000 pounds, and lives in a cage." The answer, two 500-pound canaries, was instantly disputed by a scientific chap who said, "Canaries don't come in more than 250 pounds, so it has to be four, one-legged, 250-pound canaries."

Gas about design, engines, technique, thermals, and the scale P-47 on whose radio Gilliam heard the disc jockey. But this is Gilliam's job and to his five-flight max typewriter and wonderful camera we joyfully defer.

* * *

Adjoining the Duchess Country Airport, about 75 miles north of the "big city" is an inn presided over by Carrol Moon, one of the genuine members of the original Sky Scrapers, the scrapiest club in history, and the only eastern outfit that would take the Californians in free flight, had they gotten together, and on that we won't budge. Mrs. Moon takes over the kitchen magic for crazy modelers who go up state to try things like the RC duration record, far away from the Long Island traffic lights. Moon, as the boys called him with a slight inflection, has a Univac memory, thumps a wicked dog house (bull fiddle, lads), and plays Dixie (jazz, you Juniors) on a small piano with a big voice. Even the bull frogs in the pool out back go into hiding. During the revolution, the inn was a hospital for Washington's officers, but MAN at Work slept here.

Carrol sits on the side porch and, chicken leg in hand, jumps up to watch every light plane go by. The old Sky Scrapers. Where are they now? Moon has the whereabouts of 35, and talk is of a Sky Scraper reunion, a contest for the old boys (like Harvard of '95). The war broke up that wonderful club, when guys thought you were absolutely nuts if you wanted to do anything beside run engines. At least six members didn't come back. These were modelers, the real competitive kind. Some even built planes from scratch at a contest, and would place before the day was over. Or come empty handed, and scrounge left-over pieces from wild crashes, like stabs, wings, etc., and, would put together things like Buzzard fuses and Sailplane wings with Rocketeer tails and then take high time.

These were the all time pranksters. Wheels painted on a fuselage because the

(*Continued on page 30*)

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The 1958 NATIONALS!

Tradition calls for U-control demonstrations in front of the main hangar on wind-up Sunday, to introduce awards to Champs ceremony.

They know now that Woody Blanchard didn't retire last year. He is the Grand National Champ again, again, again. Such a habit!

by PAUL GILLIAM

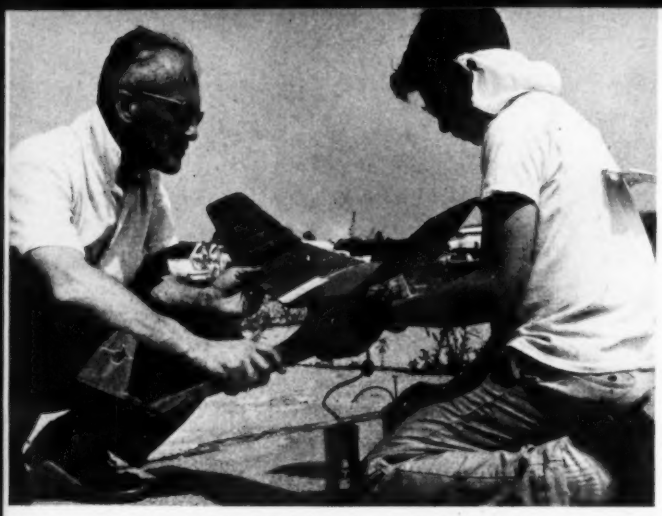
On July 21 through 27, the "Chicago" Nats took over the Glenview Naval Air Station. Three picture stories give you a run-down.

There's an old saying that there is nothing older on January 3rd each year than a Rose Bowl football game. This same feeling could apply to the National Model Airplane Championships, but it doesn't. It doesn't because a national model meet is vastly different from a national football classic. It is different because the Nationals for the model builders are a fantastic sort of participation sport. It involves more than two teams of 34 people that are knocking heads to win esteem and glory.

The 1958 Model Airplane Championships involved better than 1,400 modelers from all parts of the nation, the Republic of Mexico, and Canada. These people came to participate . . . and they *(Continued on next page)*

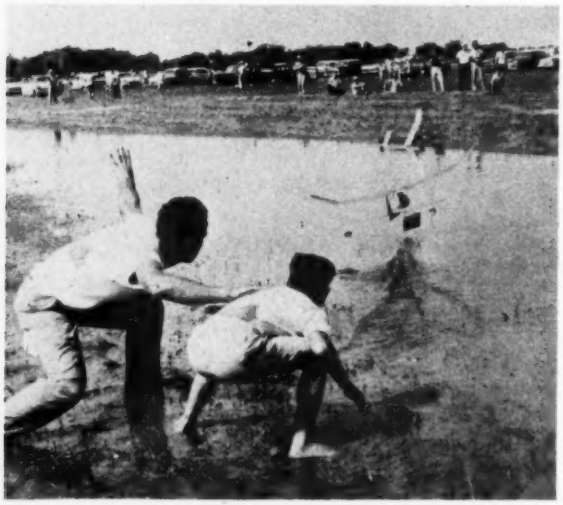
Dennis Alford, of San Diego, receives Junior National Champion award from Admiral Robert Perry. Watch this lad, there, Woody!

Senior Champ was John Wells, Wichita, Kan. All three Champions have pounded the contest trail; experience on the line pays off.



It was really the 28th Nats for Carl Goldberg, left, who is yet to miss one. Helps son Bob who is following in pa's foot steps.

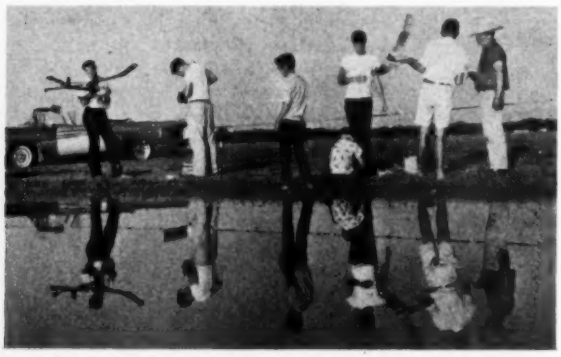
Young Dick Gardner gets off a "rocket" event model as his father George watches with a critical eye. Dad reps for Pan American.



Young Billy Hunter turns loose a Satellite for Class A, ROW record. Bob lends paternal assurance, tosses in some up aileron.

. . . fathers and sons husbands and wives . . .

The Nats are a family affair. Many wives help and some even fly. Marilyn Frost helps hubby Arthur wind an unlimited rubber job.



Scene of peace the night before as tomorrow's gladiators try the pond for size, the ROW site soon becomes the meet's hottest spot.

. . . and others

Mrs. McCormick hangs onto husband Bob's straining carrier event entry as son Mike, unheard in the excitement says wing fell off.

came to win . . . if they could. One hundred and eighty did win, if you count down to fifth place in each event. You have to count to 5th place at a Nationals because sometimes the earning of a lowly tenth requires some tidy flying.

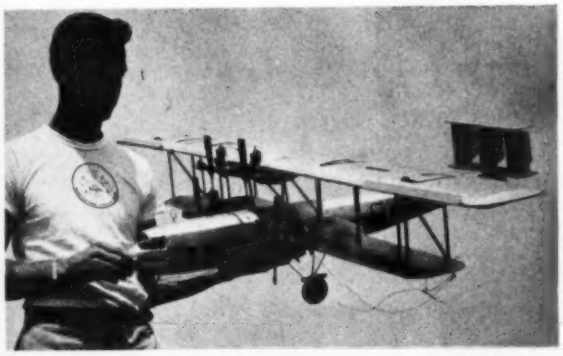
Now, let's look at the majority . . . the people who did not make the winners circle. They are good people who had a good time and they are good sports too . . . or most of them are . . . as in any game. There are some people who didn't win, not because they didn't have the best model, but because they lost their model in the tallest corn or in the highest tree. Some climbed the long tall fence never to find their model that went two miles south into the oaky woods. These are tales of a national model meet . . .

Full-span flaps that come down after engine is cut worked fine for Hank Cole, 'twas observed.

"Fin-on-Front" Keith Hoover flew a job that vied with his hat for attention. All-wood framework.

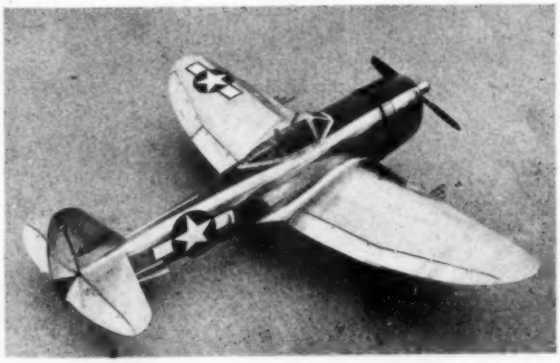
. . . scientific and scale . . .

Trying everything since a 1917 start, and getting dope from Parnell Schoenky, is C. O. Wright.



Handley-Page airliner of 1924 was entered by Courtland Browder. Scale builders are dedicated lot and entered some fabulous stuff.

You work for a year or two, then fly the thing over concrete and in the wind and pray for a break. Typical, B-24 by Ed Childers.



High points but flight pranged, tremendous P-47 took Ernest Berke nearly three years to make. It was talked about—as you'll read.

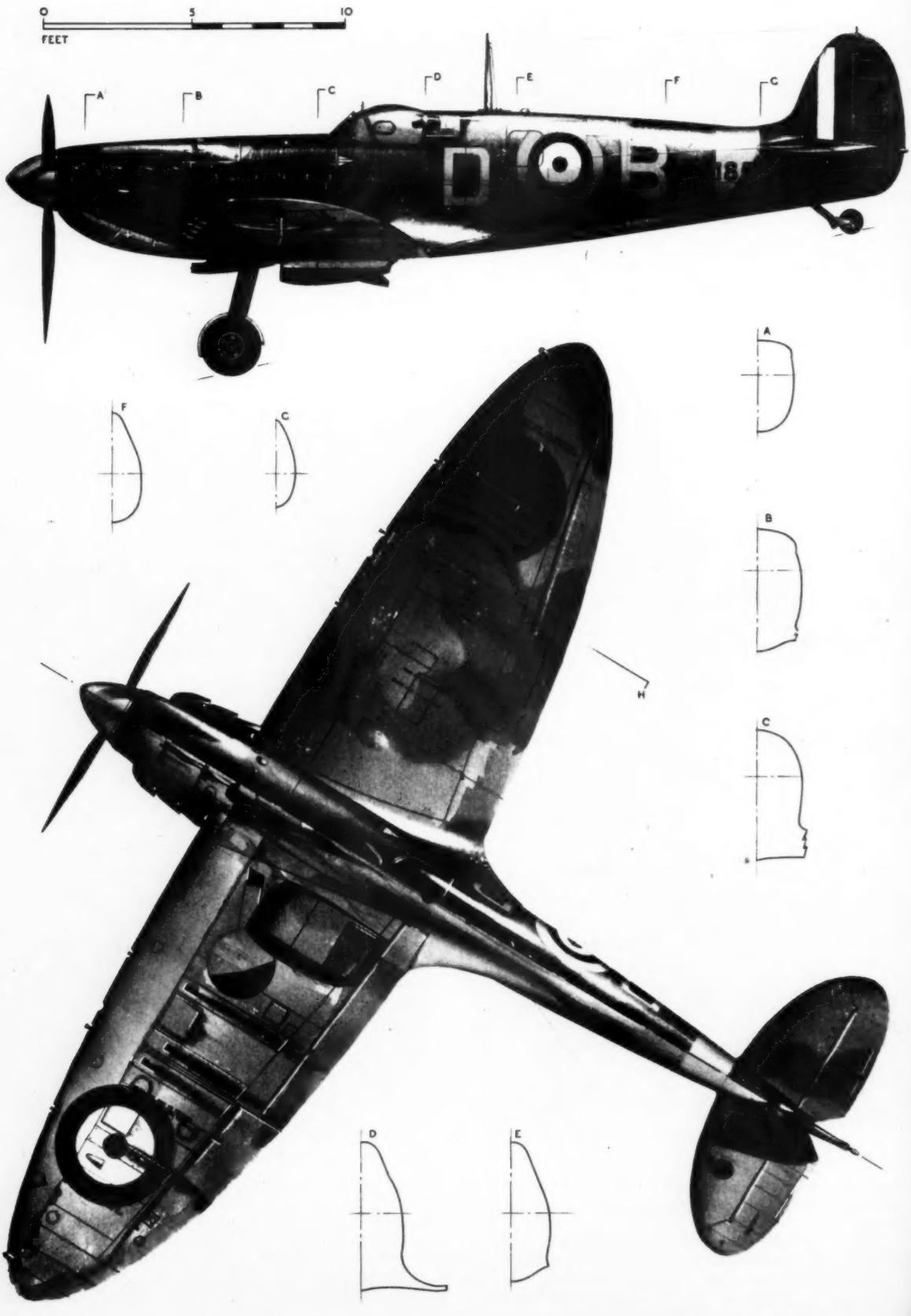
Recall Norm Deitchman's Fokker E-3? His SE-5 goes it one better. Enclosed glow .09 ran hot. (Mfr's, please make 'em run cooler.)

Two thousand bunk beds and 206 transistor radios in one bedroom made the Nats wilder off the field than on—almost.

how they won . . . or why they didn't win. They are true tales and the people who participated can never forget them.

The Navy will probably never forget it either . . . and in spite of the sweat of extra duty they seemed to have fun. Perhaps the Naval officers and men deserve a bundle of Oscars for pretending that it was fun to pick up 21,000 squashed Coke cups, 46,000 butt ends of hot dog buns, 846 glo fuel cans, 73,000 assorted candy wrappers, 27 various Ford type and duck-bill pliers, 1,820 broken propellers, 14 booster batteries, and one pair of J. C. Penney skivy shorts in a green and blue boomerang pattern bearing the laundry mark of JKS-742.

The Navy did a masterful (*Continued on page* 46)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Men and Ships

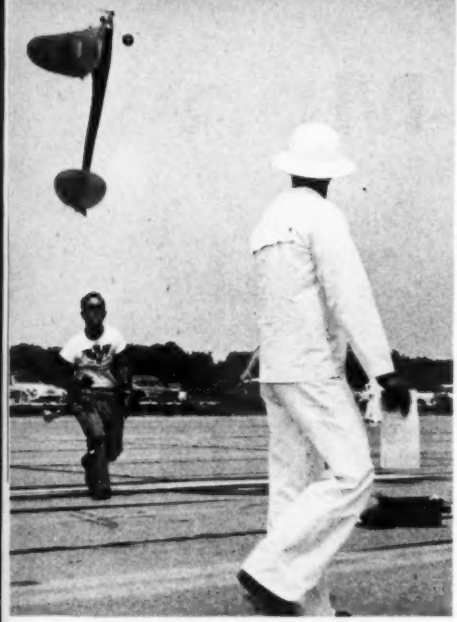
Bader and the Spitfire: Legless pilot became one of Britain's greatest aces, pioneered fighter tactics in Spitfire.

by ROY CROSS

► On a crisp December day in 1931 at Woodley aerodrome, near Reading, in Berkshire, England, three Bristol Bulldog fighters from No. 23 Squadron, RAF were trundling out on to the grass drome, bumping along the turf, rudders gently wagging. One by one they took off, watched by a small group of Reading Aero Club members, who good-naturedly had been kidding one of the RAF pilots on his aerobatic prowess. Apparently he must have been needled, for suddenly one of the Bulldogs banked round, pointed its snub nose towards the clubhouse, Jupiter engine roaring, and started a low pass across the field. The hurtling plane started a slow roll, and, dismayed, the onlookers saw the heavy fighter sink. Suddenly a wing tip touched the ground; in an instant the machine cartwheeled and disintegrated in a cloud of dust and flying debris. Miraculously, the pilot was still alive—just. His face battered, ribs broken, legs mangled, and weak with loss of blood, Pilot Officer Douglas Robert Stewart Bader probably would have but a few hours to live.

But Bader refused to die. And later, with both legs amputated, one completely and the other at the knee, he refused to accept the limitations which two artificial limbs would surely impose on anyone. Reluctantly settled in an office job with Shell—he (*Continued on page* 48)

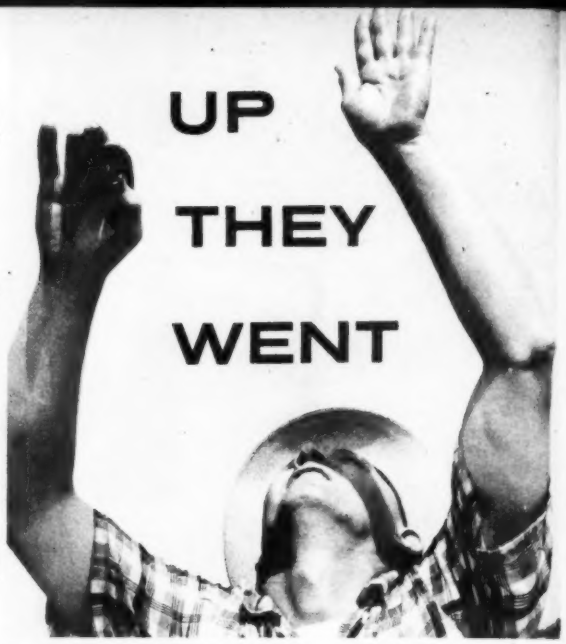
Spitfire XII's. Britain's most famous fighter plane, possibly the most famous of all WW 2 fighters, Spitfires appeared in many Marks.



Satellite without boosters, a 300 sq. in. version, by Bob Hunter screams off launching pad.

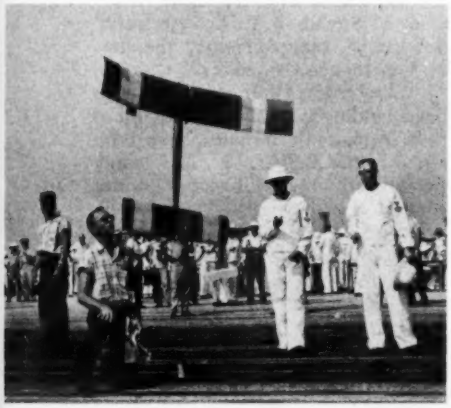
it was a VTO Nats

UP THEY WENT



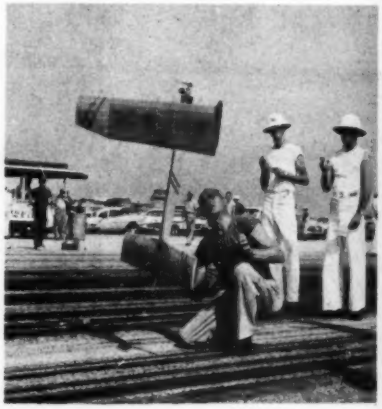
Sun-worshiper, Joe Bilgri, urges on his Wakefield—yes, rubber jobs are free flying models. So are Nordics, even HL gliders

You've seen them go off. But where do they come down? Adventure lies over the fence!

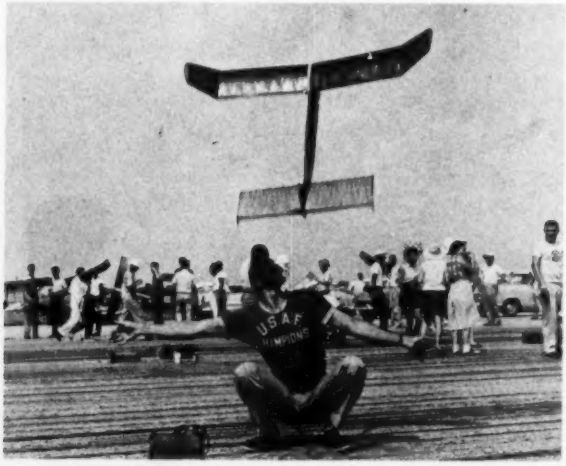


Class A Texan, by Ed Miller, puts the emphasis on the V. Myriad obstacles forced the VTOing.

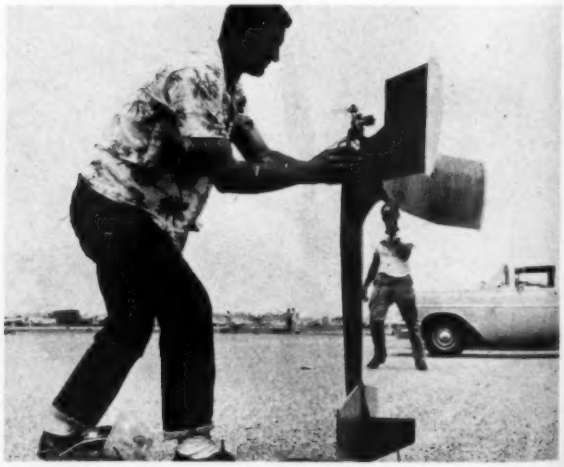
Young Billy Hunter taking first in Junior A. Everyone in seeing distance watched take-off.



Vic Cunningham lets go with B-C entry. Later, he added floats and took a first in ROW event.



Air Force's Fred Salmon, VTO's his Half A. At Nats free flight is king and, on that runway, you'll need a rabbit foot or radar.



Chuck Diller puts down an A Ramrod, by St. Jean in MAN, and hits high time for the meet: 32:41. If these pix had a sound track!

DOWN THEY CAME

Puzzled stationmaster and local boys observe silent, airborne invasion. James Patterson, in foreground, was the FAI winner. Walking rails is Ray Lehood. For chasing, gotta be in shape!

Retrieving C free flight from this canal in Illinois, Dan Lutz of Los Angeles. Few get away!

Climbing down off crane, is Ed Miller, who won B-C. The Texan a kind of Ramrod-Hogan combo.

After waiting for Nordic to drift into shore, John Nagy retrieves the tow liner from a lake.

Norman Burgdorf hands down Nordic winner to buddies who waved a wand for extension ladder.

Wandering through oaky woods for any winner he may have missed, Paul met this strolling flier.

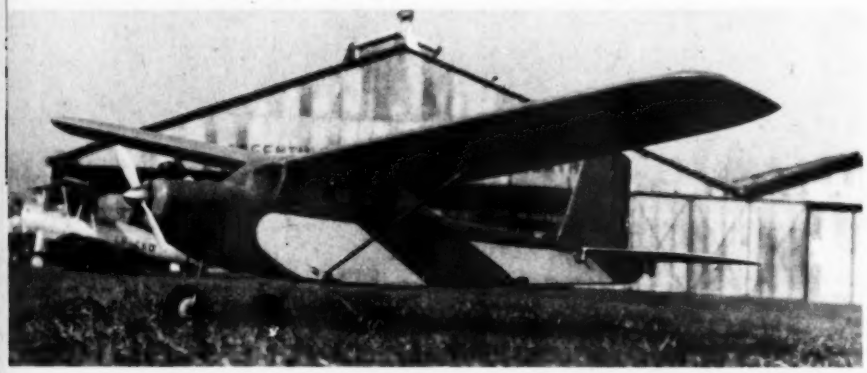
Corny ending for the C fliers, as gliding jobs descended gently downwind. Those yonder trees!

The wings go to this negative angle of dihedral when the aircraft flies inverted. Really works.

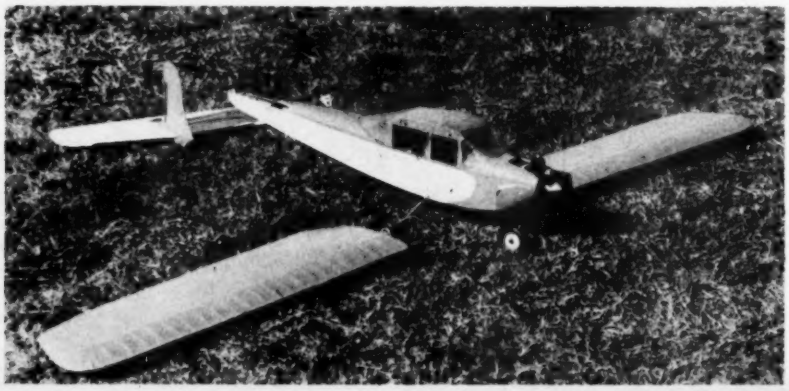
Gaucho

by JOSE IGNACIO IRIARTE

Argentine National RC Championship plane is a fantastic stunter on just single-channel radio. Reversible dihedral and clever use of a simple servo allow an inverted pattern and aerobatics.



A pretty plane that looks like most sport and trainer types, the Gaucho utilizes a fully symmetrical wing section. As seen below, tail surfaces and wings dismount, ease transportation.

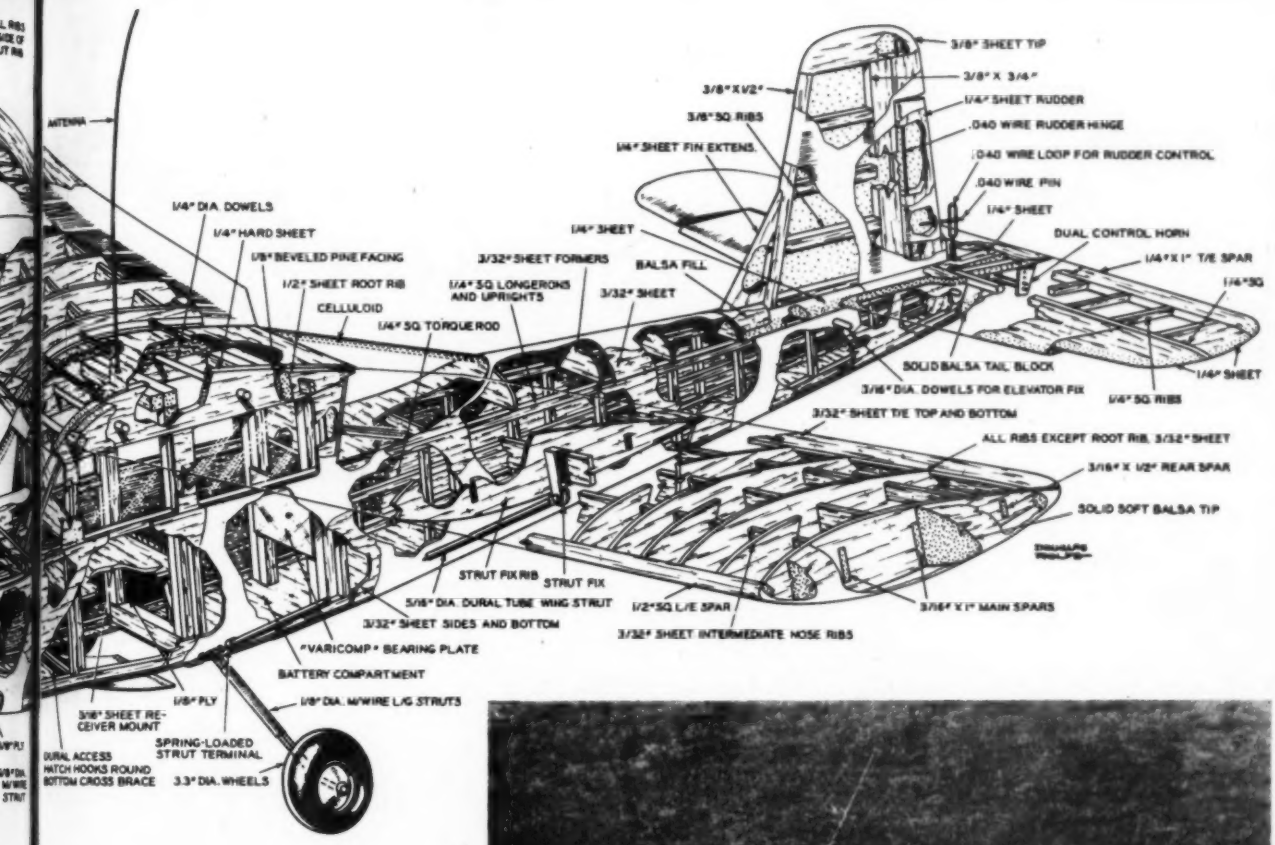


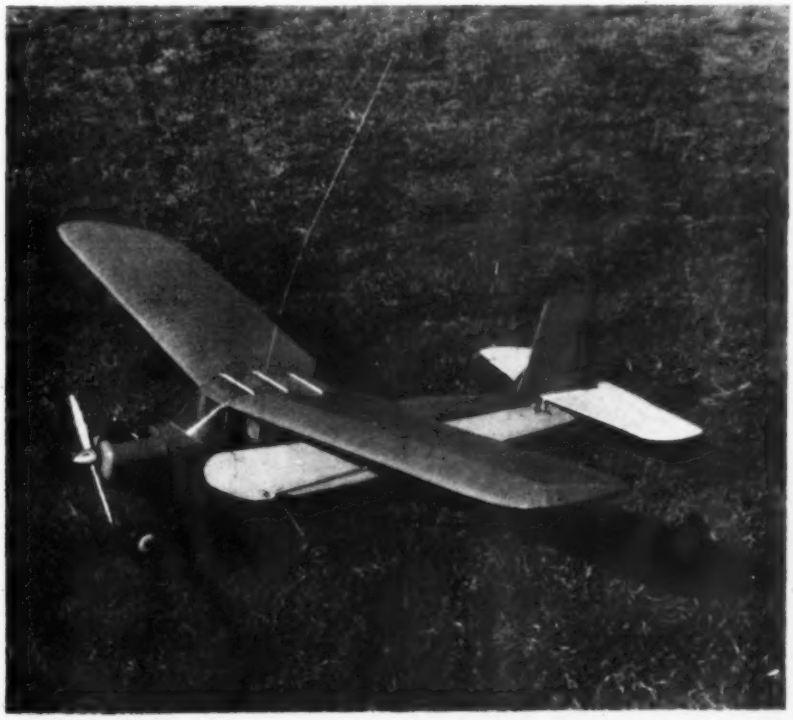
► Although designed to make inverted flight as easy as normal flight, Gaucho has many structural and aerodynamic characteristics that recommend it for both sport and contest flying.

Central idea is the symmetrical wing section (NACA 0015) combined with telescopic, supporting wing struts. These allow the dihedral angle to be altered to a new position during inverted flight, which gives the machine great stability when inverted. Stability while inverted is equal, if not greater, to that in normal flight.

The horizontal stabilizer has the greatest possible area movable so that only very small angles, and thus loads, have to be carried by the elevator during inverted flight. A large capacity tank allows the engine to function whether upright or inverted. The model is exceptionall robust, having survived several earthshaking accidents, suffering only slight scratches of the paint job. The accompanying photographs were taken after more than 150 (not all successful!) flights.

The radio equipment is neither costly nor complicated. We use a Citizenship 27 single-channel receiver that actuates a Bonner compound escapement of three positions, to which a fourth contact has been added so as





Strong rubber bands—just keep them fresh—provide reliable tension, along with telescoping wing struts to hold wing panels in plane. Ship had 150 flights logged when article was written.

to allow the "blipping" of the engine's Bramco throttle—which gets its muscle power from a Bonner carburetor escapement. The elevator is moved by a deBolt 2P2N that is controlled via the third position of the Bonner escapement. This seems contradictory because the Bonner works on three volts while the servo needs only 1½ volts. What happens is that when both the Bonner and the servo are working simultaneously, the voltage drops sufficiently so as to not allow the servo to pass its correct position. On the other hand, the greater-than-normal-voltage assures us that the servo will function perfectly at all times.

The aerodynamically-balanced rudder is actuated by means of the familiar torque rod. The elevator also is moved by a torque rod, for which an opening with an appropriate bushing is made in the rear of the fuselage. This torque rod has at its end, a short piece of soft wire; a spiral is bent in the soft wire and an extension of the wire penetrates into the elevator control horn. According to the way this wire is bent, more or less movement is obtainable at the elevator. The incidence of the latter is graduated by means of the two cross wires of the elevator control horn. These are moved up and down on the dural supports which have a series of holes 3/32 inches apart. Care must be exercised when drilling these holes to make certain that corresponding holes will place the wire parallel to the elevator surface.

Various combinations can be obtained with this system. For normal flight only, the neutral positions of the servo are made by bending the soft wire attached to the elevator torque rod to coincide with the high and low positions of the elevator, thus allowing the elevator to be moved to three different positions. Lower neutral is for normal flight; with the signal on an intermediate (*Continued on page* 42)

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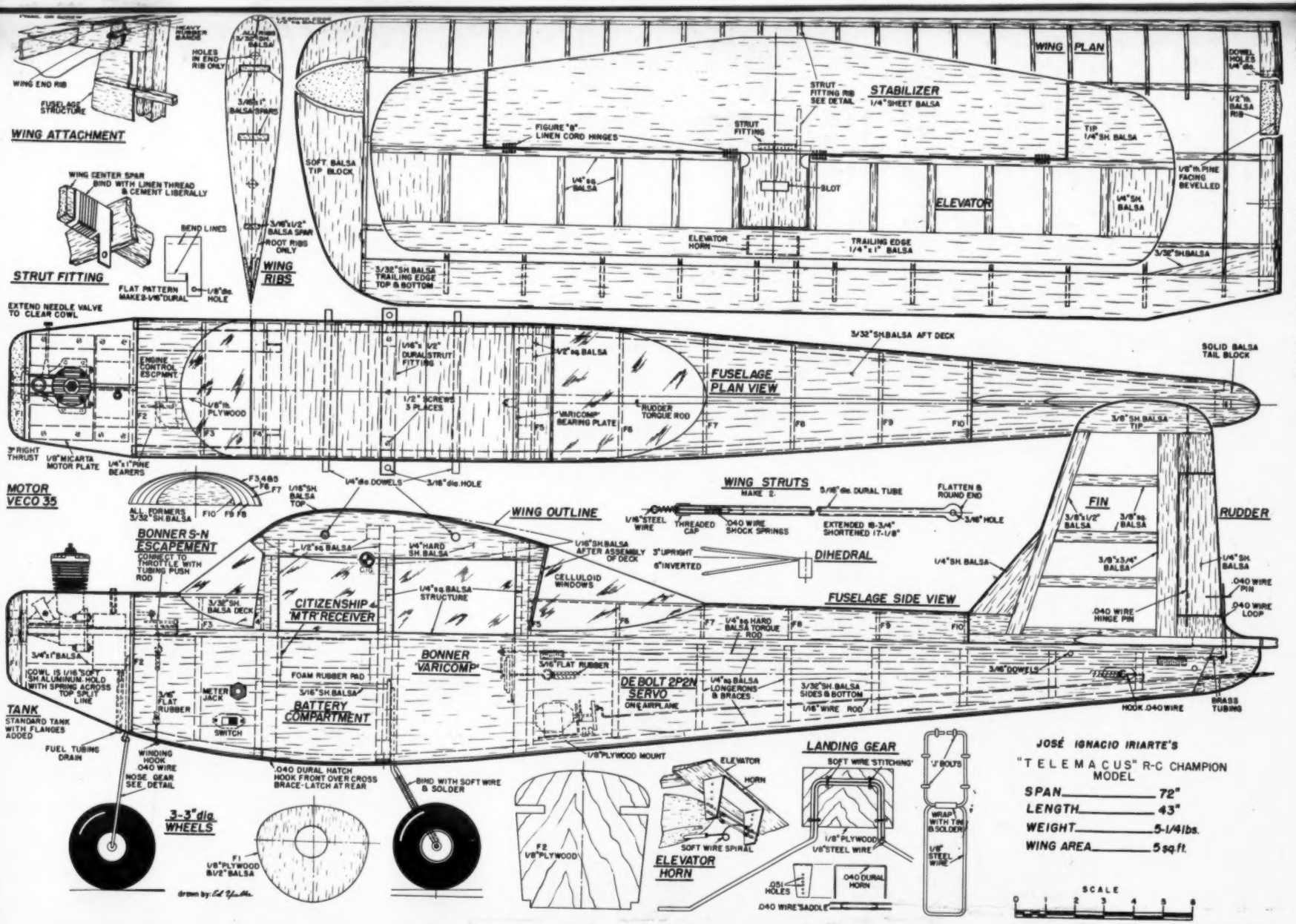


FULL SIZE PLANS AVAILABLE. SEE PAGE 60

1958 Nationals . .

AMONG

Dual proportional control and thin wings—interchangeable wings, enabled William Herschberger, Arlington, Va., to top pylon event.

THE

With completely authentic crop duster, Tom Dean, Corpus Christi takes ukie scale open almost every time he makes Nats trip.

WINNERS

Birdlike 1909 Antoinette that won in free flight scale was handiwork of Karl Speilmaker of Grand Rapids. Where's the man, Karl?

Vic Cunningham, Jr. and Sr., hold the model that took first ROW. The hydro version was flown by Dad. Boys from Baldwin Park, Calif.

The fact that the ground kept jumping up to grab the combat jobs didn't keep Bill Arrowsmith, Rochester, N. Y. from his Open first.

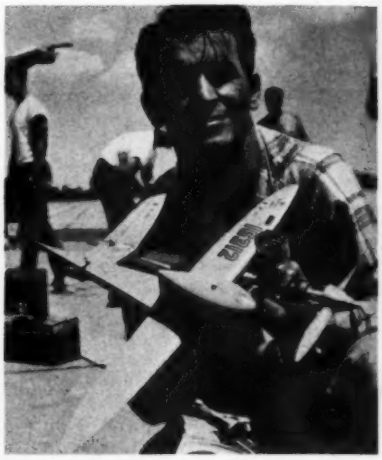
Steve Babin, who may yet own the carrier event, took first with this Mac .60 Guardian. Mrs. Babin is happy too. From Cleveland.

The Champs pile up the points but among 180 winners, you'll find plenty of top-notch designs. This handful is typical.

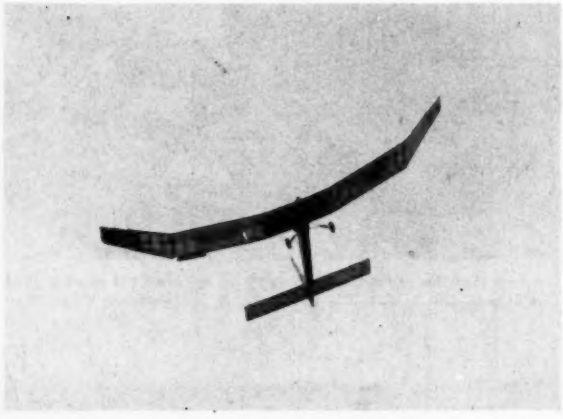
1958 Nationals . . . Among the winners

Joe Foster, San Jose, took first in indoor HL glider then flew the same ship in outdoor toss.

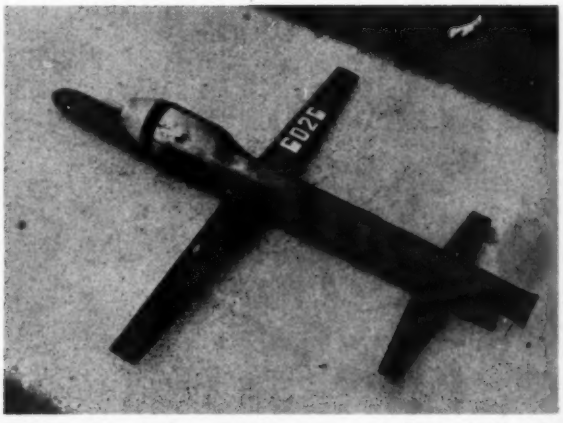
Ed Miller, Armona, Calif. knocked off firsts in Half A and B-C free flight with his Texan job.



Whirling dervish from Huntsville, Ala., Bob Lauderdale, holds winning C speed model. It moves!



Record holding, oft-winning Pelican, took first for Larry Conover, from Cedar Rapids, Iowa. These Cargo clippers fascinate our boy.



Fast pipe, blow torch, or Dynajet, winner, was flown 173.84 mph, Dave Cotton, Lawrenceville, Ill. Like speed jobs, is Mono-Line.

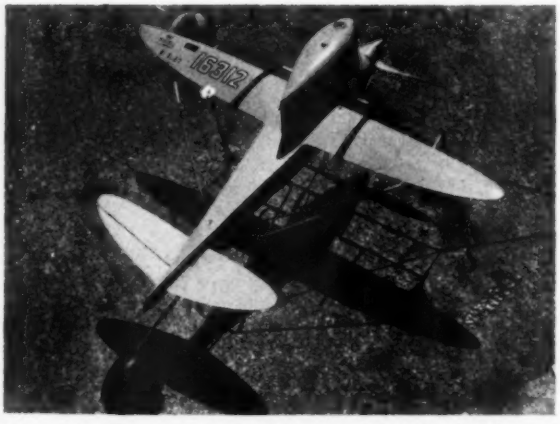
That Orbit from MAN still hot enough to win Nats—143.57 in Class A. Right, designer Lester Grogan, Leland Morton, flier, Dallas.

Intricate indoor cabin ROG design won first for San Jose's Joe Bilgri. Joe a past master at the gossamer crates. It's a science.

Masterful flying took multi again for LA's Bob Dunham. Ship changed plenty—see RC News.

Launching his FAI ship on its winning flight is James Patterson, Van Nuys, Calif. See page 15

Don Gurnett had 1,100 squares on Open Cargo winner. From Fairfax, Iowa. One had 1,300.



After taking Class C speed with 168.16 mph, Bob Lauderdale used same plane to establish new FAI mark at 172. Ironic, isn't it?

William Bertrand, Allen Park, Mich., won first in RC scale with this neatly built Fairchild PT-19. Finish and detail, up there!

A snappy 152.48 mph on Dooling .29 brought a first to the team of Boyd Shelton, R. C. Harris, Baton Rouge, La. Class B, Mono-Line.

Novel twin-boom craft was the first place winner in Open stunt, when flown by Robert Randall, Indianapolis. Note divided flaps.

When Sal releases Champ at 5 to 5:30 AM, he can be sure of 3:05 to 3:20 on 50 grams of rubber. Had high time in last three elims.

THE CHAMP

For 18 years a big winner, this simple old fashioned, unexplainable rubber-job is 1958 sensation. Perfect-score eliminations and national record holder.

by SAL CANNIZZO

► The "Champ", winner of the 1958 Wakefield semi-finals, is a design that goes back to 1940 when it was being flown by Powers Lefebvre, the original designer. At that time, the model was competing in the class D stick category and had won a number of contests. To mention a few: Metropolitan Championships, 1941; Staten Island Championships, 1940-41-43; Eastern States Championships, 1948. Since the elimination of the cross-section rule, the model has been highly successful in the Wakefield class competition. Of course, there has been evolution in the last 18 years and many modifications have been incorporated. The model's record as a Wakefield (flown and modified by Sal Cannizzo—Editor) is unsurpassed. It holds the Wakefield record and the All-Free-Flight record for 1957 of 41 minutes 39 seconds. At the 1958 semi-finals it won with a perfect score of five three-minute flights. In the past three eliminations in which it has been entered, it has qualified with the high time for the event.

The model has been tested under all weather conditions with consistently good results. Dead-air time (5 to 5:30 a.m.) is consistently 3:05 to 3:20 with 50 grams of rubber. This model also broke the 80 gram Wakefield record using a 50 gram motor.

If this sounds fantastic, build one and see!

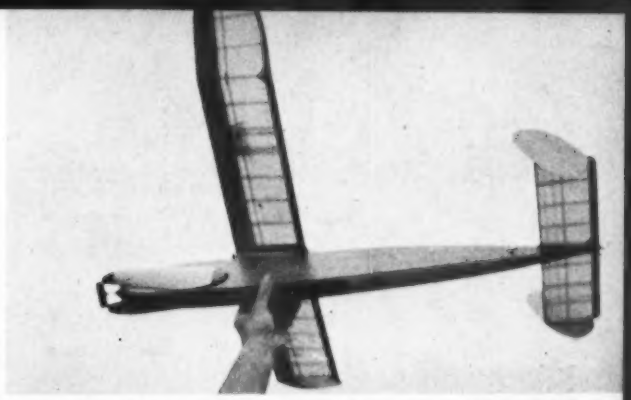
CONSTRUCTION

Fuselage: Select four strips of ⅛" sq. by 36" long for the longerons. These strips should be of equal hardness and bending qualities. This will insure an accurate fuselage and eliminate any tendency to bow or "banana." Protect the plan and the framework by either covering with thin wax paper or rubbing dry soap over the spots where wood and cement joints occur. Build both sides one on top of the other. Cut all upright members from ⅛ sq. hard balsa at the same time for accuracy. Add the ¼ sq. diagonal members using top view as a guide. Top and bottom members are identical, so cut (*Continued on page* 30)

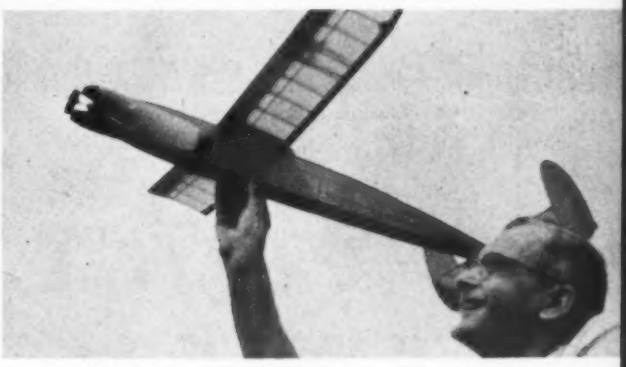
Why? It's the prop and motor combo, think eastern wheels who ate crow in eliminations. Holds Wakefield, All-Free-Flight—41:39.

Prop a modified Bilgri type, those hard-to-make fittings were obtained from New England Wakefield Supply. Sure, you can do it!

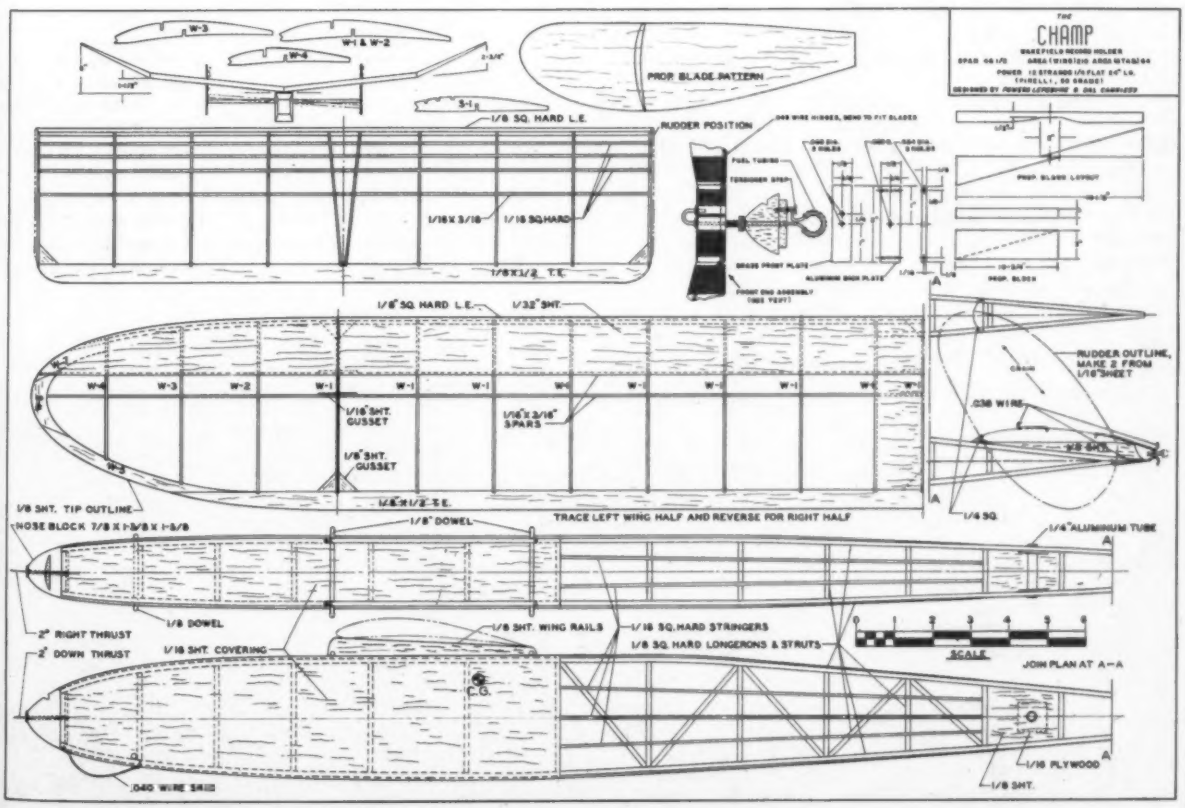
Fuse for DT trailing behind, the Champ angles into the air. When "ordinary" airplane beats the freaks, Wakefield will get boost!



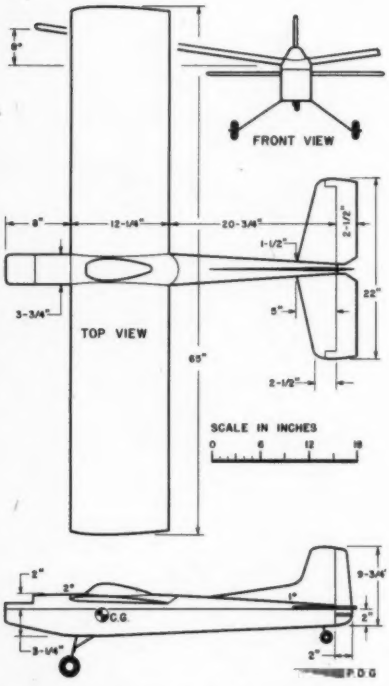
No tricks to tell you about. Twin-finned Champ has modified 6409 wing section once considered tops for gas. Say, do you suppose . . .



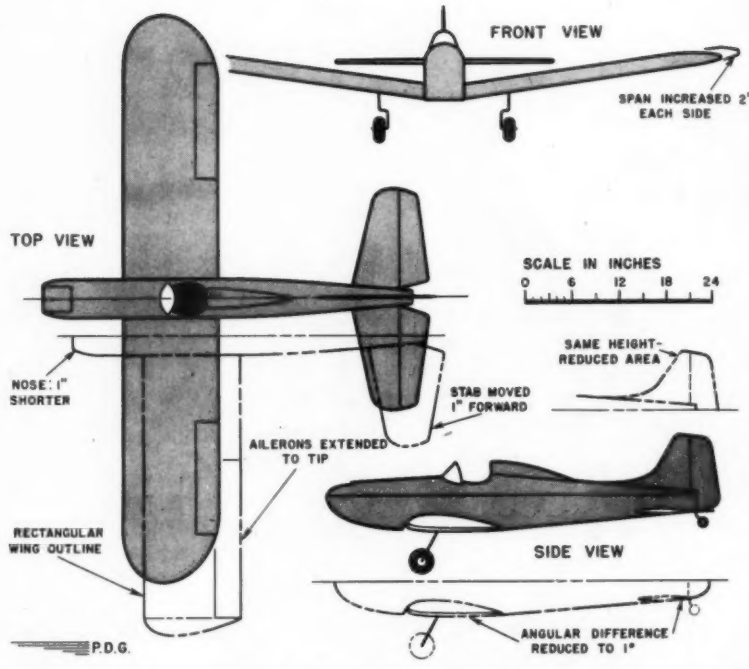
Powers Lefebvre, who designed the crate in 1940, obviously gets a big charge out of events. Heck, you can start out on this one!



FULL SIZE PLANS AVAILABLE. SEE PAGE 60



William Herschberger's pylon winner used dual-proportional, thin wing (was interchangeable).



Bob Dunham's first place multi-winning Astro Hog had many modifications, most important of which was the decreased angular difference between wing and stabilizer. For Dunham fine, plenty lively.

Radio Control News

by EDWARD J. LORENZ

The contest grind is over for another year. Now is the time for lazy flying and boning up. Pull up a chair, friend.

CLUB NEWS

► The NATS are history again and rather than give a complete coverage at one time, information will be given from time to time during the next few columns. For the moment, we've asked "MAN at Work" to fill in.

For the first time, a qualifying system was used to cut down the number of fliers by the mid-point of the week. This certainly cured the awful business of having to wait a day, plus hours, to get in another flight, as happened at the 1957 overloaded RC event. We found everyone happy on arrival late in the week but, after all, the "survivors" would be happy. The rectangle was eliminated in the qualifying flight (please, not "eliminations!"), and the precision pattern from the final flights. This, naturally, put the hot stunters on top in the show-down phases. Points, which seem low in rudder and intermediate, reflect only the judges' score in the for-real flights.

Some quick impressions: multi, with Dunham (213 points) on top, followed by Bonner, Deans, Kazmirski (well, someone broke the ice!), and Good, still without ailerons, was what you'd expect of the Nats. Rudder, intermediate—well, we've seen much better on Sundays. Flying scale, not to take away the credit any winner deserves for the try, slid off badly from last year. Main trouble was unflown, untested crates—scale builders, they are the same all over! Pylon saw first-class flying for the first time as William Herschberger (31.03 mph) did a beautiful job of piloting his shoulder wing (see three-view). Dual-proportional, handled the way it should be handled, made it possible. Sitting behind a pylon, we had a nose-on view of the ship coming down wind like an arrow, skimming overhead in a steep, tight turn like Wittman himself, and then tearing upwind with barely a movement from the straight and level. deBolt, in hard, hard, luck all week, did wow the boys with a streaky biplane in pylon (he got second) but on a real fast run clipped a thin flag stake and cut off the wings close to the fuselage.

Smoothest flying in multi was done by various dual proportional set-ups—two of the best had ailerons working along with rudder, surgical thread and pulleys connecting all the controls. One of these ships flew as smooth as silk with one degree dihedral. But they just lacked enough things to push to equal Dunham, etc., and reeds. Tripmultaneous is coming—may do it next year!

Designwise, the most interesting development was Dunham's modification to the Astro Hog. Told us the nose was one inch shorter, making it somewhat tail heavy, but you trim to compensate. Horizontal tail moved one inch forward. He built a six foot wing, added two inch squared tips each end, and brought ailerons out to the tip. This gave very fast rolls, though tricky, but Cuban Eights, etc., benefited. Big difference was a removal of incidence from the wings, leaving one degree decalage. To the everyday modeler, Dunham says this pays off, but on the rest of it, the ship is lively and you've got to be on your toes. Weight was 6½ pounds. Inverted almost stays in the groove!

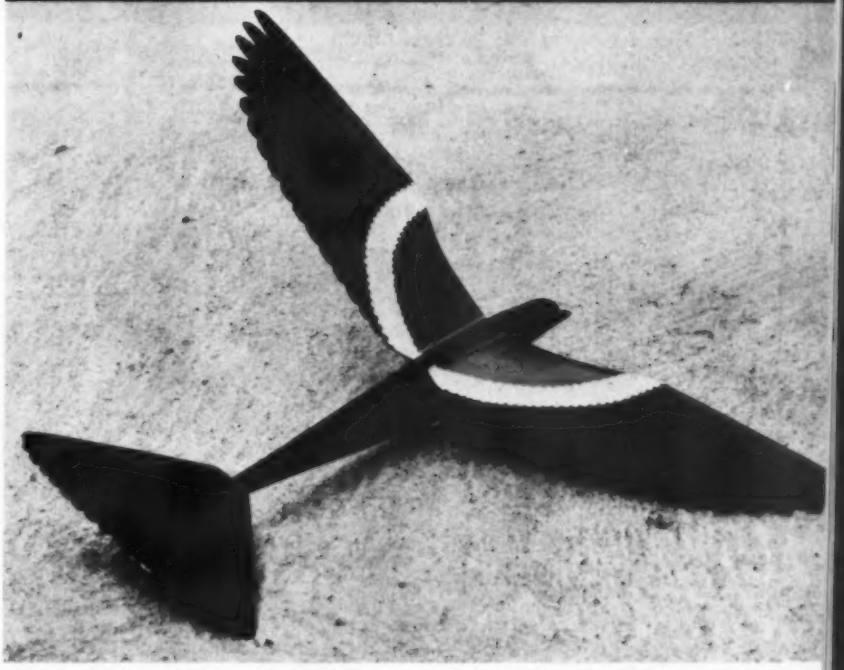
Don't think the "stars" don't keep an eye on each other. Evening grouch sessions condemned the dramatics on the mike. A guy would do rolls and the mike would say, "Ah, three perfect rolls." Does this brain wash the judges?

The winners? In multi, four (*Continued on page* 57)

balsa black bird

by PAUL E. DEL GATTO

Bird watchers flash! Stuffed owls, noise makers aren't needed to make this junior crow leave its roost.



Albino blackbird, top, is the sanded, sheet balsa model ready for painting. Above, after color doping, red, white, and black. Toss it in a hay field and real birds will circle and chatter.

The crowd with the hobby shop gliders will flip when "blackie" makes his appearance. Where did you get it? Made it yourself, of course. Rubber catapult launch puts it up like Jupiter C.

► Even real birds have to get mighty close before they discover the balsa blackbird is an impostor. A heave-ho and away she goes: as soon as she rolls out of the climb into a glide you can't tell whether this bird is for real, or not. Having caught a thermal on several occasions, staying up for several minutes at a time, we've noticed other birds come alongside for a closer look.

Aside from the fact that the model looks very much like a blackbird, it does make a mighty swell flying hand-launch model, and you can easily double its performance by using a rubber catapult assist.

Construction: The required wood is confined to two or three sizes, whichever you prefer, depending somewhat on what you have at your disposal. Originally, the bird fuselage profile was blanked out on ⅛" sheet and laminated with another piece of ⅛" sheet; you may prefer to make it out of medium ¼" sheet. The wings also were fashioned from ⅛" sheet and, for added realism, we even scallopped the trailing edges to convey the appearance of feathers. The 1/16" sheet tail surfaces were made similar to the wing.

Before attempting to assemble the model, be careful to shape and round all the surfaces, not only to improve the performance, but also because it will heighten the bird illusion. Another thing well worth remembering, is that, because of the position of the wing, the top piece of the bird fuselage profile is cut away and cemented to the top of the wing after the dihedral has been added.

Use plenty of cement in joining the surfaces together, particularly around

Plans, Pics, Text, next two pages

the wing installation. Fillet the joining edges for added strength. If you normally use a finger grip for hand launching, taper and cement a piece of ⅛" sheet on whichever trailing edge you would normally use.

The model usually does not require much nose ballast, and virtually all of it can be eliminated by melting some lead ballast and pouring it into a drilled hole which indicates the eye position. Note, too, that the hole is undersize so that, after the eye is formed (on each side), it stays in place permanently. Of course, to get the final touch of realism a certain amount of color finishing is necessary.

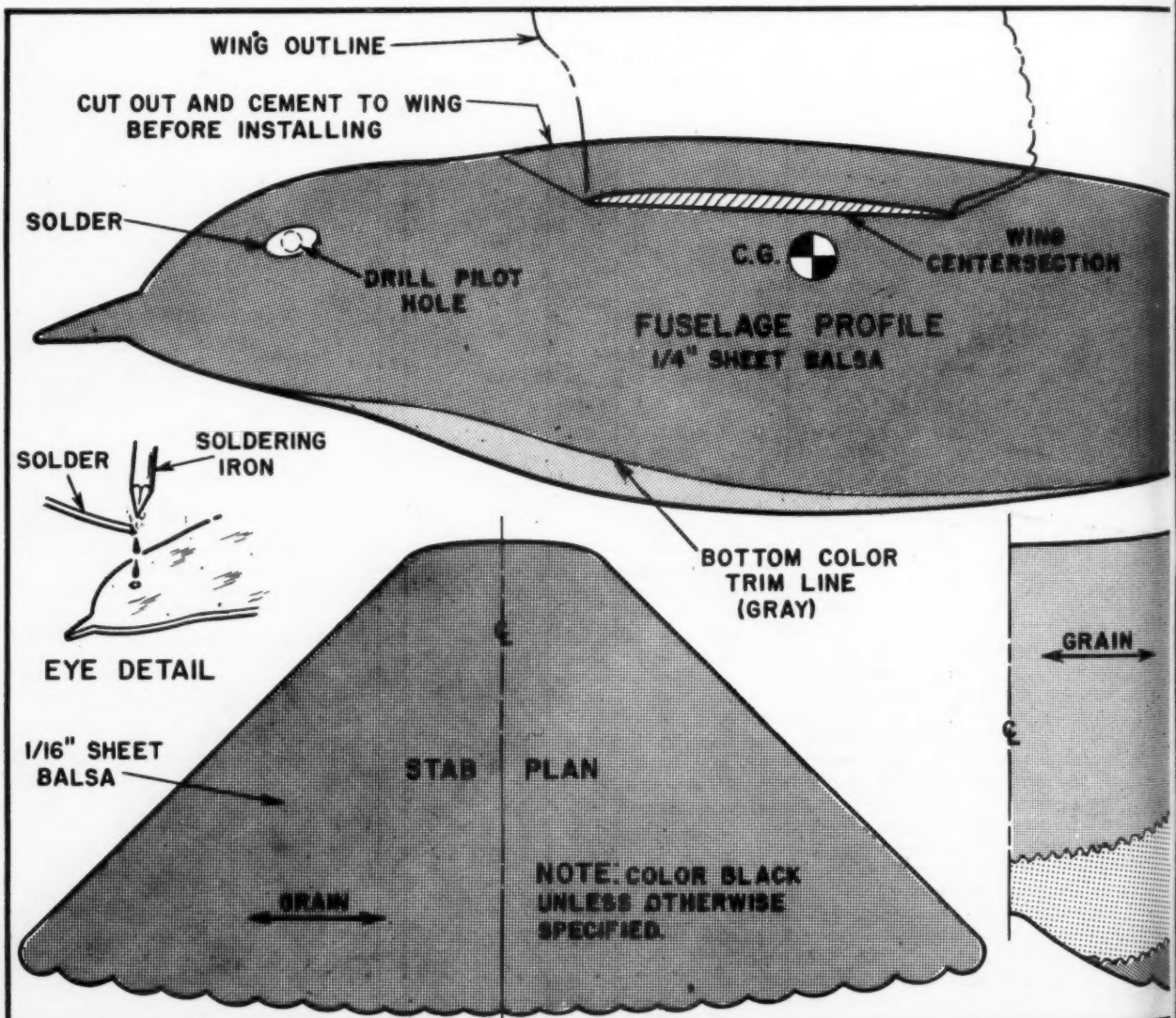
Finish: Begin by applying two coats of thinned clear dope to all the surfaces and sand gently between coats to a smooth texture. Brush or spray on two to three coats of thinned black dope over the entire model. Then mask off a small amount of the underside of the body, and trim in a light or medium gray.

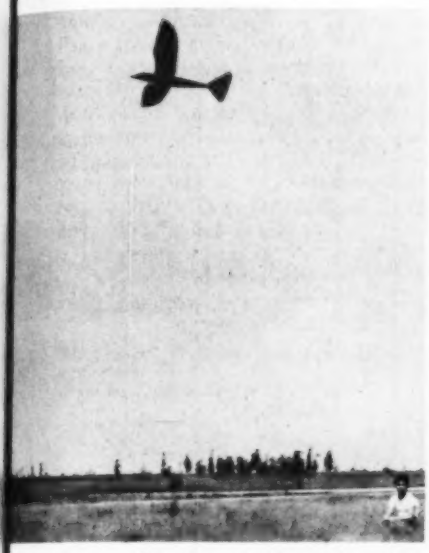
The top center portion of the wing is trimmed in bright red and yellow, approximately as indicated on the plans. When this has all been completed, you might even rub down the surface lightly and then wax it for that added luster. This may seem like a lot of trouble just for a phoney bird, but when you get a load of those gaping mouths and wide-eye stares from other modelers, you'll know it was well worth it. (If they wear white coats and carry nets, be careful!—Editor.)

Flying: Trim the model as you would any other hand-launch glider. For normal right-hand launch, trim with a left circle in the glide and vice-versa. The model may be slightly tail heavy, easily noted if it stalls violently in test gliding. If this is the case, add some clay ballast and proceed to test fly. After a few short flights you should be able to fling the glider upstairs at least a 100 feet and have it roll quickly into a beautiful glide pattern.

To adjust for the left circle in the glide, breathe on the right wing tip, at the same time bending a slight amount of positive (leading edge up) angle into that tip. The model is thrown with the right tip slightly down. When the force of launch dies out, the bird will switch from right circle into left circle.

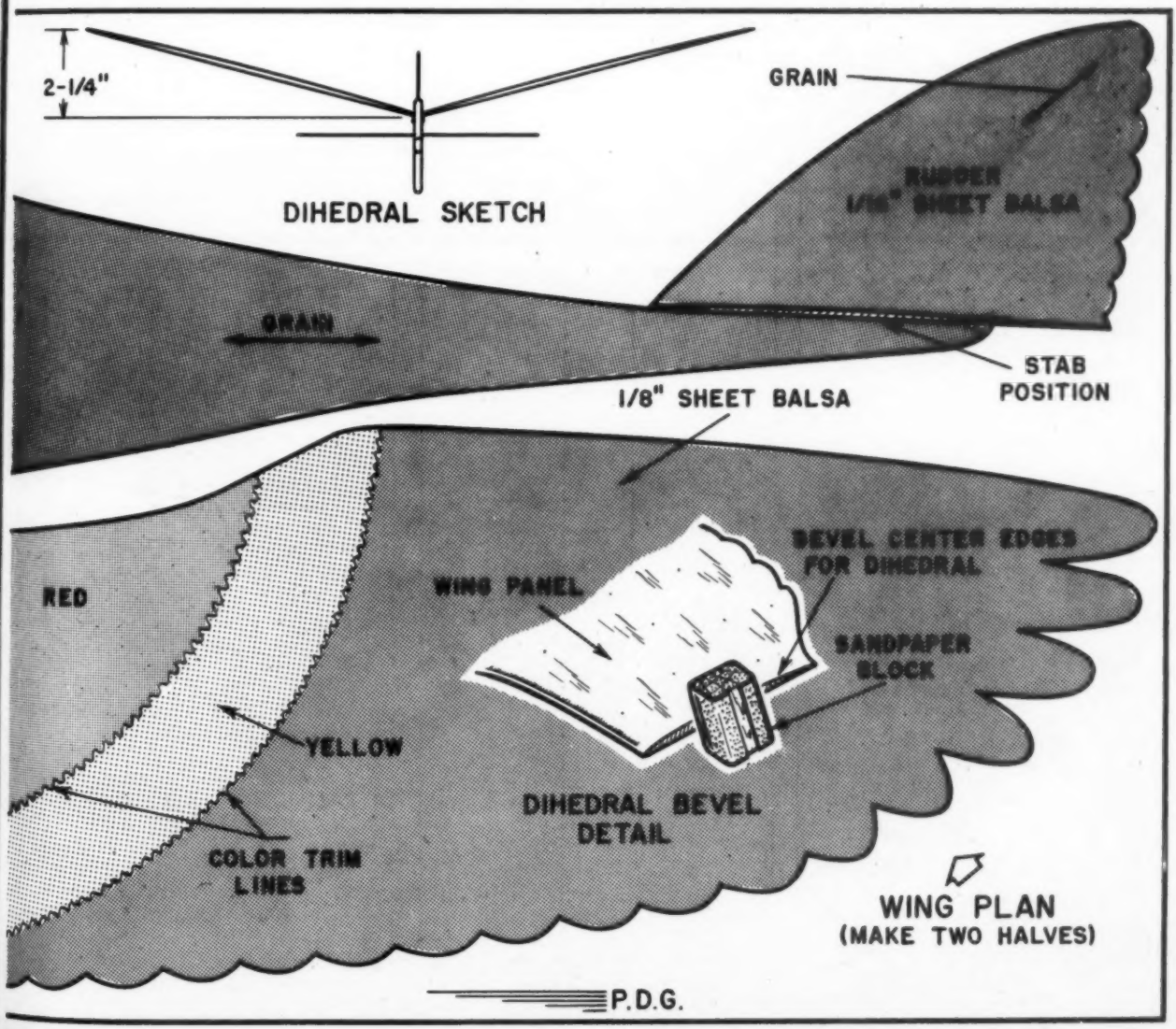
But wait! It can't be! Not a jet-powered bird! We won't do it . . . We just won't do it. We can't, we mustn't . . . or should we? Well, why not? It's about time we showed our feathered friends how to go modern. Besides, the fuselage profile provides ample space for a side-mounted Jetex "50B". Now we're really gone!



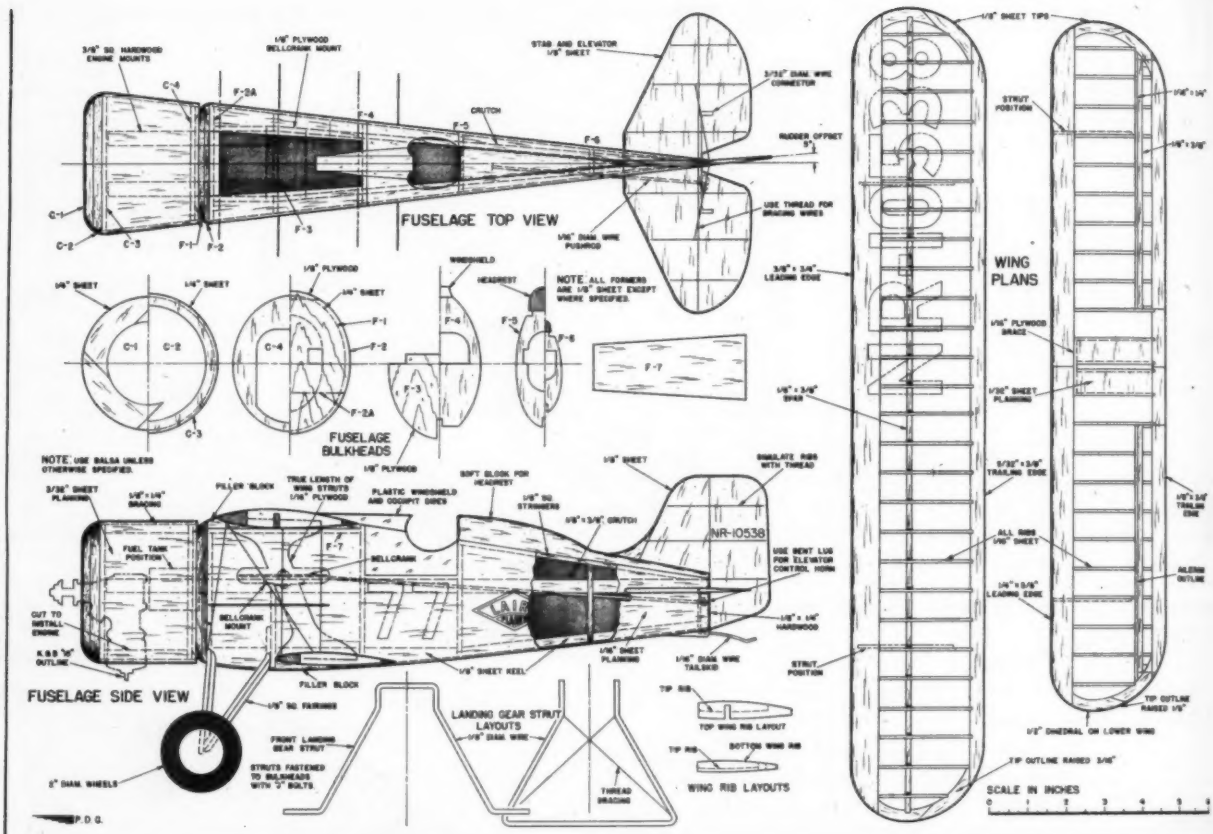


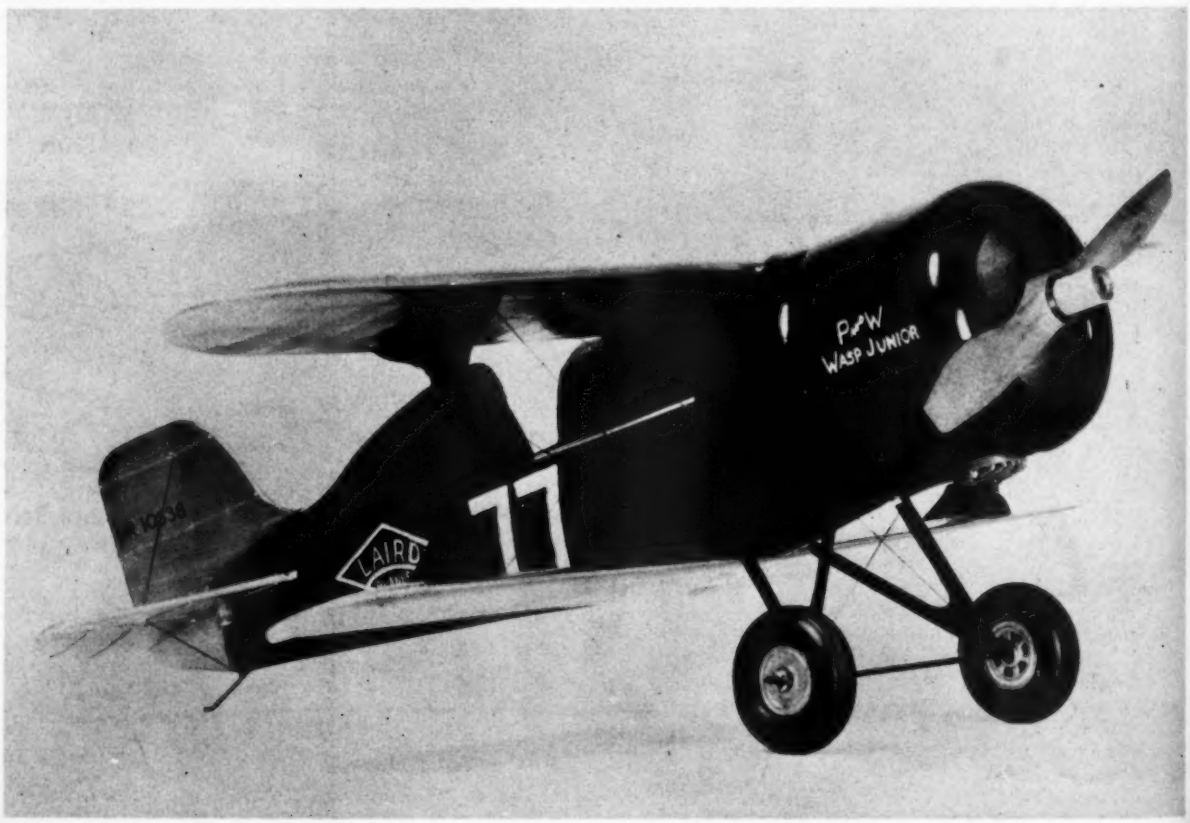
Answer to flying in park: It's a boid, mister!

Five parts, cut out, sanded, cemented together.



FULL SIZE PLANS AVAILABLE. SEE PAGE 60





THE LAIRD SOLUTION

by DAVID BRAZELTON

The only biplane ever to win the Thompson Trophy Race, the black-and-gold Solution presented for U/C, .15's to .19's.

► The Laird Solution has on its record a number of "firsts." It was ordered only about three weeks before the 1930 National Air Races by B. F. Goodrich for entry in the first Thompson Trophy Race. A modified Laird Speedwing, it represented Matty Laird's first attempt at building a purely racing type aircraft.

The Solution had only slightly more than ten minutes flying time logged when Charles "Speed" Holman took off in sixth position for the start of the 20-lap, 100-mile race. By the fourth lap, HIolman and Jimmy Haizlip, in a Travelair "Mystery", were disputing second place having been lapped by Captain Arthur Page in his Curtiss XF6C-6, the only military plane in the race. Holman claimed first place in the 17th lap when Page was overcome by exhaust fumes and crashed.

Holman crossed the finish line to become the winner of the first Thompson Trophy, the first and only biplane to win the Thompson, and the first civilian plane to average 200 miles per hour in a closed-course race.

The plane was cleaned up and flown by Dale Jackson to third place in the 1931 Thompson. Three Lairds were in the 1931 race, the Solution, Doolittle's Super-solution, and Ong's stock Speedwing. Only the Solution and the Speedwing finished to signify the last appearance of biplanes in the Thompson.

Here is the Black and Gold Solution presented for reproduction at 1"=1'. It is an easily built, sturdy model for engines from .15 to .19 cu. in. displacement. The construction is common crutch and former and will go together easily. The following instructions point up some of the more important points and the decoration. A study of the plans and instructions, a trip to the hobbyshop, and you are ready to build a fine scale sport plane.

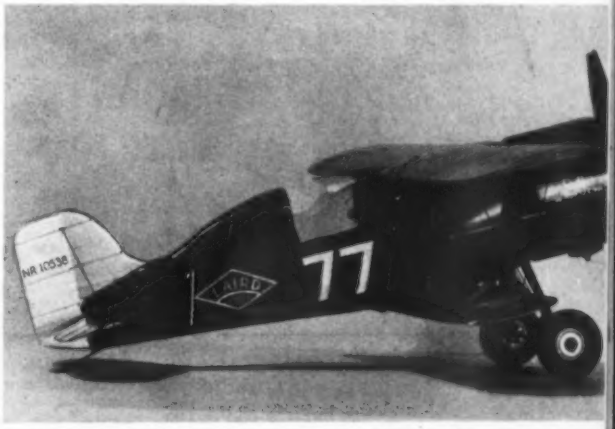
Wings: The wing construction is conventional with the upper wing made flat in one piece. Start construction by stacking 25 pieces of 1/16 balsa for top wing ribs and 22 pieces of 1/16 balsa for the lower wing ribs and shaping to the outline of the ribs.

Cut and shape the leading and trailing edges and pin to the board with the leading edge blocked up 1/16 inch, the trailing edge ⅛ inch. Cut out the tips, pin into place and cement the two sections together (do not cement to leading or trailing edges yet). When dry, cement in place with the outboard end of the tip blocked up 3/16 inch above the bottom of the trailing edge. Cement the spar in place and install the ribs. When dry, shape the tips and cut out and install the tip ribs.

The lower wing is built in the same way, with the exception of the two inner ribs, which are not installed until the ⅛ inch dihedral is cemented in. The trailing edge should be cut for the ailerons after the wing is completed. The wing and ailerons should be covered and finished separately.

(*Continued on page* 41)

It will turn a pretty fair loop, says the designer here checking out plans, but, like most biplanes, is sensitive to overcontrol. Careful!



Ready to ramble, the little Laird is one of the most glamorous of the "old time" racers. One "bipe" without center-section struts!

Crutch construction makes alignment fairly easy, and the finished job sturdy. Author's Vought bipe appeared in December 1957 MAN.

MAN at Work

(*Continued from page 7*)

rules didn't state that wheels had to revolve. Or the "timer act." Several would soften up a timer by complimenting him on his keen eyesight, and pretend not to be able to see the things he saw. Then, when a Skyscraper put one up, they'd begin. Look at the way the prop stopped. Right off the corner of that cloud. There's a piece of rubber hanging down from the back of the wings. Yeah, yeah, we see it, plain. Say, I can read Joe's AMA number, all but the last digit. Look what it is doing now. All this after the crate would be gone from the sight of the Palomar telescope. But the keen eyed timer never would admit it. You might get 40 minutes this way. Got so crazy that one chap came back after a 30 minute chase, crate under his arm, and the timer was still peering into the distance watching a bird that the boys sold him. Tales of the famous green truck and how two of the guys trapped this gent with eight free flights inside. The fellow got the jug.

Moon is still a true Skyscraper. On the wall is a rack of old guns, including an ancient antique, one of the biggest, still workable weapons in existence. Loaded with old Brown and Ohlsson scraps, we believe. One night some fool invaded the premises, took a snap shot at our doughty free flighter, who dragged down the howitzer and let go through a window. Sheet lightning lit the scene like day, and thunder reverberated all the way to Rip's Catskills up the river. The intruder did the fastest drag in history to get away and the next day they had another hole in the road to patch.

After having goofed two endurance flights (with 13 hours fuel, one ship got off in 480 feet, another in 110 feet, only to strain through a snow fence and other obstacles, like the ground) the old Skyscraper was mighty good medicine indeed. Thanks Carrol for the reminder of why this is the world's finest hobby—and you other old Skyscrapers let Moon know how you are doing. You hear! (Memory Inn, Wappingers Falls, N.Y.)

* * *

The mid-Hudson Bridge, International Business Machines, the Memory Inn, and Lorenz's basement—in the reverse order—are Poughkeepsie's main attractions. Mid scopes and RC boats and planes, a couple of wild bull sessions. Old Brain Buster, Bill Poythress, our Contest Director did a Paul Revere's ride from beyond the winding Hudson, showing up with a couple of Half A deltas that stole the show. Saab Draken types, rather like Shindler's ducted fan jobs on the coast, but with the tractor engine stuck up on a strut. These things move like an anti-tank rocket. Bill sits them on the grass or on a puddle and they slide off with less fuss than a Mac 60 powered Rebel. For radio, he mounted two .02's in tandem.

These guys never had it so good. Working for IBM, they have city slicker jobs way out in the country, with flying fields competing for attention. Ponds, too. Boat exhibitions with Moon, the peerless, on the PA system. Reminds us of the time that absent minded Benny Shereshaw—you there Benny?—sold two magazines on sponsoring the Eastern States contest, biggest on the seaboard, before the war. Never will forget bumping into Charlie Grant (hi, Charlie) who said where do you think you are going, and vice versa. Moon did the PA that day, too. He got out alive!

The Champ

(*Continued from page 22*)

them together.

Remove the fuselage sides from board when cement is completely dry and carefully separate them using a razor blade. Assemble the fuselage sides with the cross members using rubber bands to hold while cement is drying. Be sure that fuselage is true and square.

The next step is to fill in the rear rubber-anchor section with medium ⅛" sheet. This is best accomplished by tracing the outline on ⅛" sheet directly from the frame using a sharp pencil. Fill in both sides and bottom as shown. Next, cement 1/16" plywood insert to inside of both filled in areas. Now mark off where the rubber retaining pin is located on both sides and drill a ¼" hole to accommodate the ¼" aluminum tube retaining pin. Coat the inside of the ¼" hole with cement and allow to dry. Add ⅛" sheet stabilizer mount. Next, cover the front part of the fuselage frame with medium soft 1/16" sheet as shown on the drawing. Cover top and bottom first and then both sides.

The next step is to add the 1/16" sq. hard balsa stringers, three on each side and two on the top and bottom. Space as shown on the drawings. When cement is dry, sandpaper fuselage smooth. Use sandpaper and block to taper stringers as shown.

Fuselage should now be covered before adding wing rails, dethermalizer hook and dowel pins. Use a good grade of Jap tissue and give three coats of clear dope thinned 50-50. Cut the balsa wing rails from ⅛" sheet being careful to get incidence angle exactly as shown on the drawing. Sand smooth and cover with tissue. Now, cement in place as shown in the side view.

Add the ⅛" dowel pins for wing, nose block and tail. Cement dethermalizer hook in place.

Nose Block and Propeller Assembly: The propeller is a modified Bilgri type which is made from a medium grade block measuring 1"x3"x10¾". Cut the block diagonally as shown. Cement the two halves together as illustrated in the diagram. This joint should be double cemented. Drill hole for prop shaft being sure it is absolutely centered and true. Make a cardboard template for both the upper and undercamber of the blade, as well as, the blade outline. Carve the undercamber first. Trim blades to outline shape using template and sand to a smooth finish and contour. Make sure to balance prop perfectly. Now cover the prop with tissue and dope. Rebalance by adding dope to the light blade. Make the hinge assembly from ⅛" sheet aluminum as shown. The front plate is made from thin sheet of brass or tin. Bind and cement to prop hub before cutting blades for folding. Cement 3/16" plywood plug to back of nose block carving the nose block to shape. Mark top and drill for bushing making sure to get two degrees downthrust and two degrees right thrust. Now cover with tissue or color dope.

We used the Dolby propeller shaft, bushing, ball bearing and tensioner spring assembly. This assembly can be had from New England Wakefield Supply, 33 Exchange Street, Rockland, Mass.

Press-fit bushing to nose block with cement, slide the prop shaft through the nose block, tension spring, ball bearing and prop. Bend the wire in front of the hub in a "U" as shown on drawing. Use heavy pliers and a piece of 3/16" wire or nail to obtain the correct bend. Assemble two washers on shaft and insert end of shaft back into the front plate. Now solder both washers securely to the shaft and front plate. Be extra careful to maintain alignment during this operation, as we cannot emphasize too strongly the need of having a perfectly balanced, true-running front end. It is the heart of a rubber powered model.

Next, using a #4 wood screw, assemble to the nose block for the tensioner stop. Find the correct stop position by experimenting with the prop assembly in the folding position around the fuselage.

Wing: The airfoil is the familiar NACA 6409. You may plot your own rib sections if you desire. This is recommended unless you get full size plans. A total of 19 W-1 main ribs are required and two each of the tip ribs W-2, W-3 and W-4 are required. They are all cut from medium quarter-grained 1/16" sheet. Cut two each of the curved tip parts W-5, W-6 and W-7 from medium 1/18" stock.

Build the left wing half and reverse for the right wing half. The panels are assembled directly over the drawing in the usual manner. Use hard ⅛" sq. for the leading edge and medium ⅛" x ½" tapered stock for the trailing edge. Note: Block up inside of trailing edge about 1/32" to maintain the airfoil shape.

Add the 1/16" x 3/16" spars after the wing has been assembled to the correct polyhedral angles. Next, cover the leading edge and center section with medium 1/32" sheet or soft 1/20" sheet. Sand entire wing smooth and coat with clear dope all parts that are to touch the covering, especially the under portion of the airfoil. The wing may now be covered.

Stabilizer and Rudders: Build the stab directly over the plans, same as the wing. The airfoil in the stabilizer is a modified flat bottomed NACA 6409 with a drooped trailing edge, so don't forget to block up the inside of the ⅛" x ½" trailing edge, 1/16" for drooped effect. Cut the rudders from medium soft 1/16" sheet using the outline given on the plan and cover them with Jap tissue. Now, cover the stab with Jap tissue and cement the rudders in place at the angle shown. After the entire covering has been water shrunk and is completely dry, coat it with nitrate dope thinned 50-50. You can now cement the key to the bottom of the stab and the .040 wire dethermalizer hook to the trailing edge as shown. Caution: Make sure that no warps develop and that all surfaces are true. If warps should develop, they can be corrected by steaming.

Motor: The motor is made up of 12 strands of black Pirelli rubber 24" long and lubed with castor oil. Maximum turns for this type motor are 540 but this would vary with the different thickness that comes in a skein of rubber. When breaking in rubber motors, caution should be taken in not rushing the operation. It should be done step by step, first winding to 30%, then to 40%, and so on, making the motor rest one half hour between each phase. A good hint is to put the last 20 or 25% turns in when flying for competition; it really gives the model a kick!

Balance and Required Weight: Some ballast (preferably lead) will be needed to bring the model up to weight (8.113 oz.). Use this ballast to bring the center of gravity (CG) to the point indicated which is 3¾" from the leading edge of the wing (approx. 75%). By using this method, you bring the model up to weight and find the correct CG in one operation. Try

(*Continued on page 40*)

TESTORS

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These cements have been specially formulated for use with plastic model kits of all kinds . . . planes, trains, boats, etc. You will be amazed at how strong they are . . . how they actually *fuse* parts together in a permanent weld. You will find them easy to work with, too . . . quick-drying, exactly right for better building. Testor's Polystyrene Cement comes in 10c tubes with long pointed tip; Testor's Cement for Plastics comes in 25c jars with handy brush-in-cap applicator. They're available at hobby shops everywhere, so ask for them . . . *by name!*

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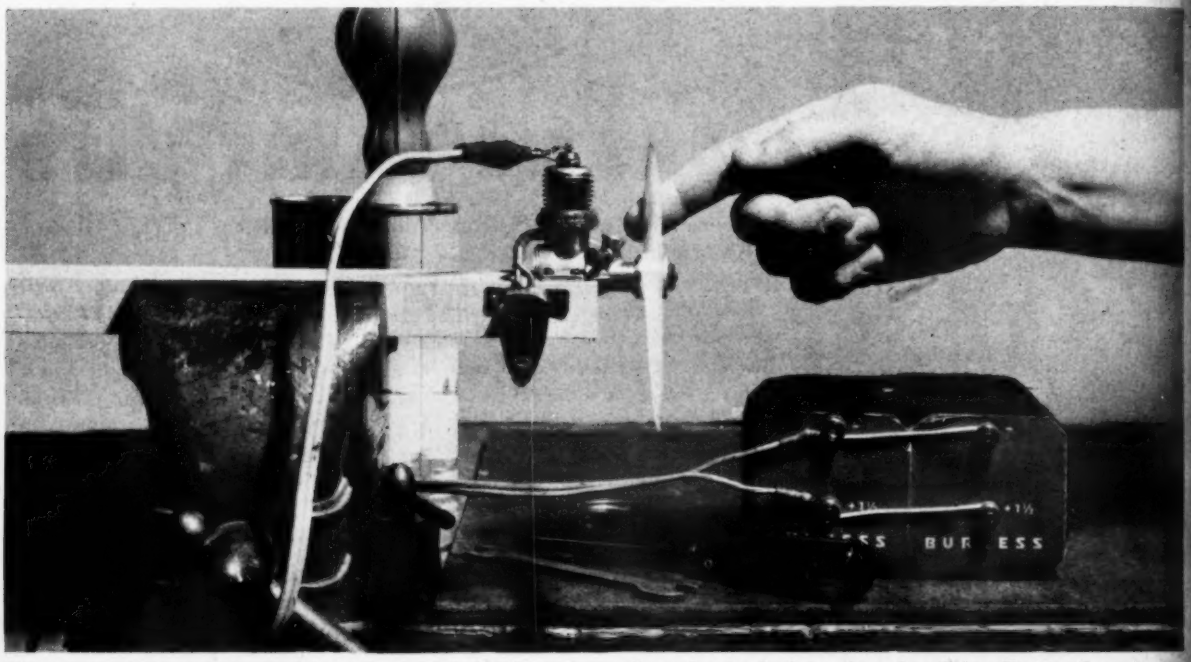
Let's Get (The Engine) Started!



What you need: Boosters in parallel (note terminals) for 1½ volts, a slip-on booster lead to glow plug (light alligator clips, ok, but accidental touching together shorts battery), fuel pump of some kind (rubber bulb type shown), prop wrench, and firmly anchored mounting.

by I.N. STRUCTOR

An engine is easy to start—once you know how. The old master has more space here to explain it than do the printed directions.

► Recently, while chatting with the local hobby shop owner, we were interrupted by an irate father-and-son team. Dad insisted that the engine he bought for his son was a lemon. It wouldn't run, said he, even after hours of tinkering.

But when the dealer asked how they had tried to start the engine it was discovered they had neglected to attach a battery to the glow plug. They had simply put fuel in the tank and started cranking. So into the back room we went and ye hobby dealer gave the team the short course on how to run a model engine. When the Little Demon .049 roared into life, the smiles were something to see!

After the satisfied customers had departed, friend hobby shop owner assured me that this case was by no means unusual. Beginners' bafflements bring a steady stream of complaints back to his counter.

Of course, it would be nice if every dealer could give a demonstration with every model engine he sells. Unfortunately, this is nearly impossible. Perhaps this article will clear away some of the fog surrounding that new engine.

First and foremost, every engine manufacturer provides operating instructions with each engine. Read them and study them, until they are etched permanently into your mind. This will save you much trouble. To ignore instructions is to manufacture problems.

Next, assemble the accessories needed for running your engine. Fuel and a strong right arm are not enough. You will need a can of fuel (type recommended by manufacturer), a fuel pump or rubber bulb to transfer fuel from can to engine tank. Most small engines have integral fuel tanks; if yours does not, purchase a small metal tank at hobby shop. Also get a length of transparent fuel line (thin diameter for small engines) if none comes with engine. Next on the list are booster batteries. Get two new fresh 1½-volt dry cells if you can afford them (such as Eveready No. 6). They will last longer than a single cell or even two successive single cells—by far! Hobby shops usually stock the shorter versions, also No. 735 Eveready. Connect the two batteries in parallel (see picture). All glow plugs operate on 1½ volts although some tolerate two volts. Higher voltage will quickly burn out the element in plug. Purchase booster wire and alligator clips for getting the current from batteries to engine. There are kits for this item and several varieties of clips for attachment to glow plugs. Some engines come supplied with adapter clips that can be connected to ordinary two-strand household wire to make booster leads. A two-foot length is ample.

Next items are wrench and propeller. Here again, many engines come supplied with a socket wrench especially made for removing glow plugs and prop nuts. Never use pliers on either plug or prop nut. Do use size prop recommended by manufacturer. Don't overtighten the plug—some engines will distort.

Now to mount the Little Demon .049. If engine had radial mount lugs on rear of crankcase, it is a simple matter to fasten engine flat to a scrap of 1x2 or 1x3 with wood screws. The wood is then (*Continued on page* 54)

The sound you just heard was another price barrier cracking!

Super Sabre F-100

6.95

flight tested prototype model

PEE WEE .020 powered

another production miracle from

Thimble-Drome

where the incredible keeps on happening!

Thimble-Drome breaks the price barrier with a highly detailed miniature replica of the swept-wing Air Force plane that broke the sound barrier! Imagine—*a still lower price* on a powered plane of the quality you have come to expect from Thimble-Drome! Once you see the beautiful fully decorated Super Sabre F-100 with its "world's smallest" Pee Wee .020 engine, you'll want to own it, fly it, brag about it to the gang. Hurry to your favorite dealer's! It's there now!

Wing span 10¾"

Fuselage 13⅛"

Unbreakable Spring Starter

You know you've got the best when it's by Thimble-Drome

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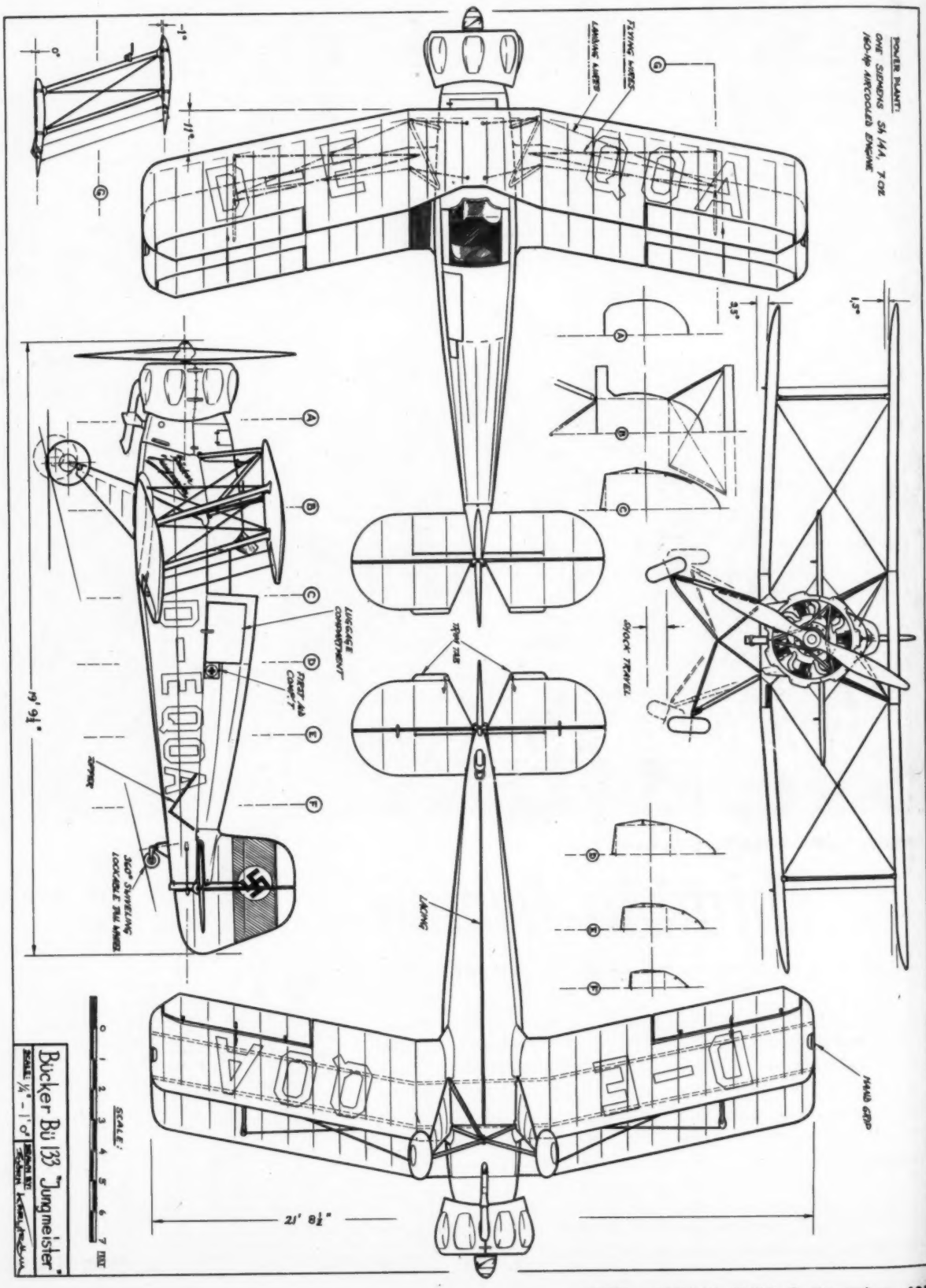
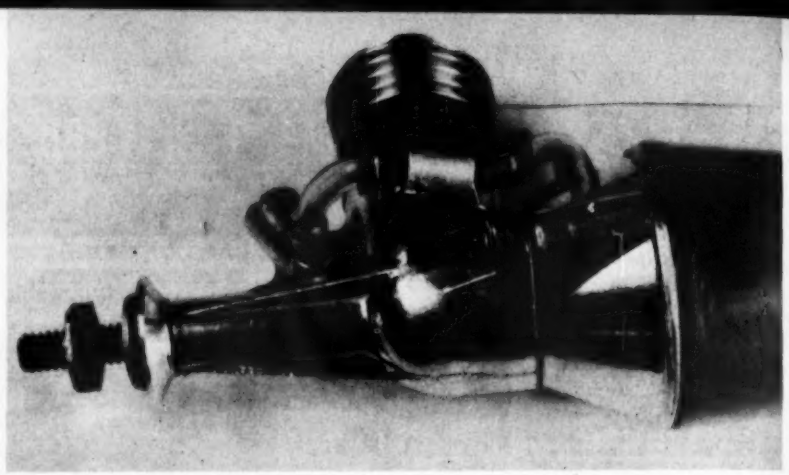
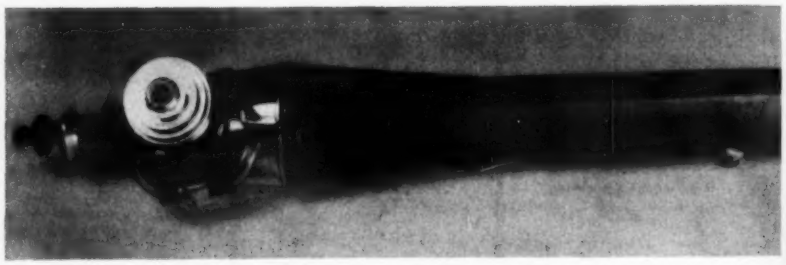
Planes Worth Modeling — Bucker Bu 133 JUNGMEISTER





As an integral part of the fuel line, this cut-off requires virtually no more space than the fuel line and is held in position with a bent wire mounted on the engine bolt. A short feed



This cut-off used with an Elmic dethermalizer allows a slender fuselage configuration. Take-up kink in the linkage wire can be bent to make adjustments. Cut-off here in closed position.

Cutoff for small engines

Extra, unsightly "plumbing" that affects fuel feed is a handicap with Half-A free flighters. Used to be . . .

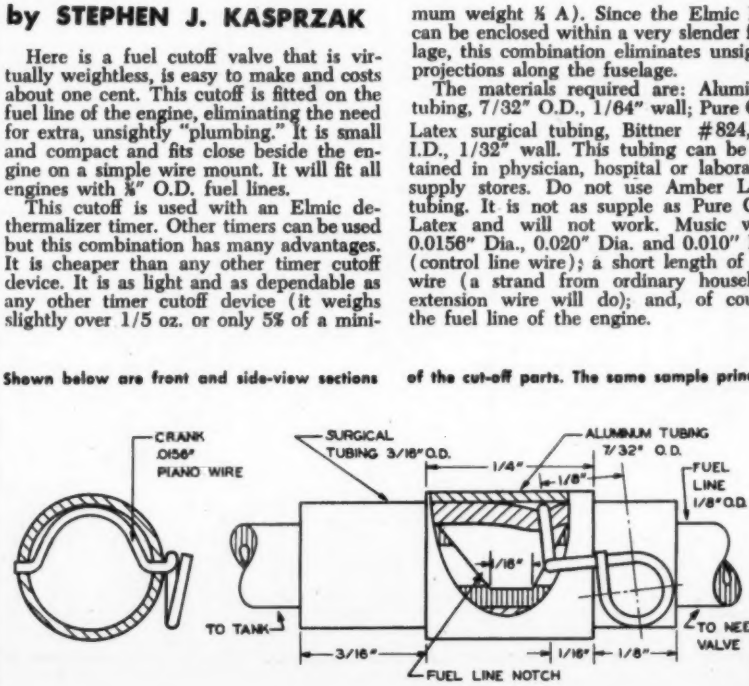
by STEPHEN J. KASPRZAK

Here is a fuel cutoff valve that is virtually weightless, is easy to make and costs about one cent. This cutoff is fitted on the fuel line of the engine, eliminating the need for extra, unsightly "plumbing." It is small and compact and fits close beside the engine on a simple wire mount. It will fit all engines with ¼" O.D. fuel lines.

This cutoff is used with an Elmic dethermalizer timer. Other timers can be used but this combination has many advantages. It is cheaper than any other timer cutoff device. It is as light and as dependable as any other timer cutoff device (it weighs slightly over 1/5 oz. or only 5% of a minimum weight ½ A). Since the Elmic D.T. can be enclosed within a very slender fuselage, this combination eliminates unsightly projections along the fuselage.

The materials required are: Aluminum tubing, 7/32" O.D., 1/64" wall; Pure Gum Latex surgical tubing, Bittner #824, ¼" I.D., 1/32" wall. This tubing can be obtained in physician, hospital or laboratory supply stores. Do not use Amber Latex tubing. It is not as supple as Pure Gum Latex and will not work. Music wire, 0.0156" Dia., 0.020" Dia. and 0.010" Dia. (control line wire); a short length of fine wire (a strand from ordinary household extension wire will do); and, of course, the fuel line of the engine.

Shown below are front and side-view sections of the cut-off parts. The same sample principle



Cut and file aluminum tube to length and de-burr. Drill a 0.016" hole through the tube 1/16" from one end and de-burr. Center a short length (1½" will do) of 0.0156" dia. music wire in these holes and pull into shape around the inside of the tube with a pair of needle nose plyers. Squeeze the pliers carefully to avoid bending the aluminum tube out of shape. Hold the crank in place against the inside of the aluminum tube with a pair of needle nose pliers and bend the wire ends back up into axial position. One end is then bent forward to form the crank arm, 90° to the crank, and the other end is cut off close to the tubing. It is important that the crank arm is no longer than ¼". A longer arm requires more rapid, forceful travel than the Elmic D.T. provides. Move the crank through its full 90° travel until it works freely.

Cut the Pure Gum Latex tubing to a length of 9/16" and insert into the aluminum tube.

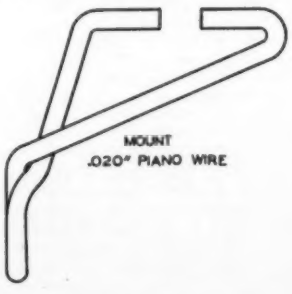
Select the section of the fuel line that most closely parallels the fuselage and cut a notch on the outboard side of the line. Be sure the notch bottom is cut into the opposite wall of the fuel line to prevent fuel leakage in closed position. A shallower angle on the tankward side reduces the amount of tension required on the crank arm. The notch should be shorter than ¼". The notch bottom should be no shorter than 1/16". Slip the fuel line, lubricated with castor oil, into the Pure Gum tubing and adjust until the crank seats properly into the notch. Then bind the ends of the Pure Gum tubing snugly to the fuel line with one to two loops of fine copper wire to prevent air bleeding into the fuel line. Test the cutoff by blowing through the fuel line with crank arm depressed. If air passes, the crank is not properly seated or the notch is not cut deep or long enough. When the cutoff works properly, replace the fuel line cutoff on the engine.

The wire mount is made by bending a piece of .020" dia. music wire to approximately 270° leaving ends long enough to reach the ends of the aluminum tube of the cutoff. Bend one end forward 90°. Measure the distances to the tubing, bend and cut off excess wire. Fit mount between the aluminum and pure gum tubing and bolt mount with the engine to the fuselage. A wire mount for lug mount engines requires only slight variations in bending.

Link the cutoff to the timer with a piece of 0.010" dia. control line wire with the cutoff in closed position. Test the cutoff on the engine. If a small adjustment in length or tension is required to completely shut off the cutoff, bend the linkage wire.

This cutoff has been used successfully on ¼A glow plug engines. The Pure Gum Latex tubing lasted about nine months with glow fuel. It may not last quite as long with diesel fuel but the tubing is easily replaced.

of pinching a length of surgical rubber tubing.



to have the exact weight. It means a lot not to be overweight when flying for top honors.

Adjusting and Flying: With the model assembled and the CG in the proper place, glide the model from shoulder height. Glide should be fast and flat with no stall evident. If fine trim is needed, use shims under stab. Under leading edge for stall, under trailing edge for dive.

Try a powered flight with low power (100 to 150 turns) to see what natural tendency the model has. Power climb should always be to the right at a fairly high angle when fully wound. Maximum turns should be reached in gradual steps. Model will glide left or right with equal ease. Adjust glide by the tilting stab method. If power adjustments are needed, these are best accomplished by using small shims at the nose block.

This is a fast-climbing, high performance model. With care in making adjustments, you should have success. Light the fuse at all times!

Foreign Notes

(*Continued from page 2*)

and also a number of model engines, were obtained. This activity continued during the period 1951-56 and, during this time, quite a few American engines, notably Cubs and Torpedos in various displacements, became known and respected by Indonesian modelers.

Since 1956, however, little official assistance has been given and, as there are few, if any, shops carrying model supplies in Indonesia, modelers labor under considerable difficulty in regard to the supply of materials and equipment. Most types of models have been built in Indonesia, even including pulse-jets and RC jobs, but, due to the shortages mentioned, most activity is concentrated on gliders. A national contest for this type of model was first held in 1952 and again in '54, '56, and '57.

Difficulty in obtaining supplies is a common enough problem overseas and has confronted model makers in most of the less developed areas throughout the world. We have no doubt that in due course, however, these troubles will be eased in Indonesia, as elsewhere, when modelers' efforts become more widely recognized.

ITALY

The shape of things to come in the FAI World Championship speed class is to be seen in Italian expert Renzo Grandesso's new model, built to the latest FAI rules. Appropriately named "The Biggest", this .15 cu. in. Barbini B. 40TN glow engined model spans 22 in. to meet the new FAI rule calling for 200 square centimeters of total area per cubic centimeter of piston displacement—i.e. 77.5 sq. in. wing and stab for a 2.5 c.c. (.152 cu. in.) motor. There is also a maximum weight rule of 100 grams (3.527 oz.) per 100 sq. cm. total area. Grandesso's ship comes well within this limit at just over 13 oz.

It is thought that 200 km. hr. should not be too difficult to achieve with these '60' size models, although it is admitted that two or three seasons' development work may be required before this is generally exceeded with currently available commercial glow 15's.

CZECHOSLOVAKIA

We have just managed to secure a new Czech MVVS 2.5 Diesel of the latest series —the first, we believe, to be seen in the West. This is the engine which has been so eagerly awaited by FAI teamrace and free flight enthusiasts on both sides of

the Iron Curtain.

Made by the state-sponsored Model Development Center at Brno which produced the phenomenal .15 glow engine used by the all-conquering Czech speed team in the last World Championship event and which holds the present world speed record for .15 cu. in. motors, the MVVS 25-D, as it is now called, is now being built as a limited production item. In its production form, it is a single ball-bearing engine of high quality with a performance on a par with that of the Oliver Tiger.

Like the very successful Japanese Enya 15-D, and unlike every other .15 cu. in. Diesel aspiring to World Championship class contest performance, it is a loop-scavenged motor. One of the features of the design is a unique cylinder intake port which is cut in an oblique plane through the cylinder wall. The result of this is that the gas from the bypass first enters the cylinder in narrow twin streams through the sides of the inlet port, expanding towards the center as the piston descends.

SPAIN

Flying an American Fox .35 powered model, Spanish engine manufacturer Fernand Battlo won the stunt event at the European Controlline International event in Spain. Fritz Rieger, German stunt champion, was second with a Max 35 ship. In the FAI teamrace, run to the new rules calling for 187 sq. in. total area for a 2.5 c.c. motor, Fernandez of Spain won, followed by Bernard of Belgium, both contestants using Oliver Tigers. It is clear that the new, larger size models have at least as good a performance as the earlier type: over 90 mph and over 40 laps (52¼ ft. lines) on 10 c.c. (just over 1/3rd. oz.) tanks, are already being realized.

IN BRIEF

Japan . . . The long awaited O.S. Max-15-D Diesel motor is now in production. Motor features twin ball bearing shaft and front rotary intake and its loop-scavenged cylinder and finned head give it a distinctly "glow" appearance. A maximum output in the region of 0.30 bhp is expected.

Monaco . . . A Henry Struck Sea-Cat (MAN plans) flown by Entzeroth of Switzerland, won the Prince Rainier Trophy for RC models at the 6th International Hydromodel contest at Monaco. The f/f gas and rubber classes were both won by Italy, by Piazzoli and Fea, respectively. Popular Guido Fea repeated his last year's victory with a fine model featuring a retractable front pontoon.

Switzerland . . . An entirely new multi-channel RC outfit has been promised from Switzerland, which is to feature simultanous proportional control on all channels.

The Laird Solution

(*continued from page* 29)

Fuselage: Nothing difficult about the fuselage. Build a crutch of ⅜ x ⅜ balsa and install motor bearers. Attach bellcrank and pushrod to mount and cement in place. Cut fuselage formers F-4 to F-6 out of ⅛ balsa, slip over crutch and secure.

Bend the two parts of the landing gear from ⅛ music wire. Cut former F-2 and F-3 and fasten the landing gear to them. Cement F-1 and F-2A to F-2, hook the main strut in the rear strut so that the horizontal section of the rear strut forms the crossbar, and cement F-2 and F-3 in place on the crutch. Cut out the keel and secure in the notches in the bottom of the formers. Sew and cement the tail skid to

a piece of ⅛ pine and set in place between the crutch and keel. Solder the front and rear struts securely together.

The stabilizer and elevator should be built and installed next and the control system hooked up. Cement the ⅛ square longerons to the top of the formers. Carve the head rest and cement in place. Install F-7 and plank the entire fuselage with 1/16 x 1/4 balsa strips. Cut and shape the fin and rudder and cement in place with about five degrees right trim in the rudder.

The cowling is built on the same principle as the fuselage. Start construction by cementing C-3 and C-4 to each end of two ⅛ x ¼ balsa strips at top and bottom and squaring up with a piece of 1/16 x 1/4 planking on each side. Cement C-1 and C-2 to each other and to C-3 and proceed to plank the cowl being sure to leave ⅛" overhang at the rear.

The cowling and fuselage now are sanded well and all cracks filled with plastic balsa or a mixture of dope and talcum powder. Cover with Silkspan.

Finish and Assembly: On a biplane, finish must be accomplished before final assembly. After covering with Silkspan, all units are given six to nine coats of sealer with sanding every third coat. The wings and tail surface are painted gold. If your favorite fuel-proof dope does not come in gold color, most art stores carry gold powder which will mix with clear dope to make an acceptable finish. Do not rub a metallic finish with compound unless you have a few coats of clear on top. The registration numbers are applied in black. The fuselage and cowl are black with white lettering on the side.

Cement the upper wing on top of F-7 and fair in with block balsa. Finish as above. Now you can install the windshield. Two 1/16 square strips, painted black, are cemented along the joint of the windshield and the wing as shown in the top view.

Cut the interplane struts from 1/16 plywood to the shape shown in the dotted outline. The right wing strut need not have the "ears" for the line guides that are shown. Drill ⅛ inch diameter holes in the line guides of the left strut and bush with ⅛ inch eyelets. Finish in black.

The covering of the wings is slit at the attachment points of the struts. The lower wing is fastened to the fuselage and the struts are installed at the same time. Fairings are built on the landing gear and finished in black.

Rigging: Rigging is not complicated and well worth the effort although it does not contribute very much to the strength of the model. Use black carpet thread and do not dope. A single wire is crossed in the plane of the front strut. Single wires brace the stabilizer. With a needle and thread run through the fin, through one stabilizer, around the fuselage behind the tailskid, through the other stabilizer, and through the first hole in the fin.

The lift wires on the wing run from the main gear to the forward end of the strut, back to the fuselage, and up to the rear end of the strut. A single landing wire runs from the upper wing-fuselage juncture to the front of the strut on the lower wing. A piece of 1/16 dowel is cemented to all wires as shown dotted in the side view.

Flying: As in all biplanes, the Laird tends to be sensitive to overcontrolling. It is advisable to set the lines as close together as your handle will permit. After you get accustomed to flying it, the Laird will turn a pretty fair loop. It is a fairly stout airplane and will take a reasonable amount of punishment.

Gaucho

(*Continued from page* 17)

attitude of flight is obtained; with the high neutral, a stalled flight is achieved. This allows beautiful loops for, with the lower neutral position, you gain flying speed by means of a spiral dive, pass thereon the elevator position to the high neutral, and thus obtain very tight round loops at all times, having rudder control available in case of any drift.

These positions also enable us to achieve very realistic landings, as the position is first held at low neutral to make the approach, changed to intermediate for the final precise maneuvering, and finally allowed to go on to the high neutral, flaring the model out for a perfect three point landing—at a very low speed. Having the neutrals coincide in two intermediate positions, we thus have four positions of the elevator available: low neutral for fast flight, high neutral for almost stalled level flight, high position with signal on for a looping or very stalled level flight, and finally low position with signal on for a very sharp power dive. The landing is made by allowing the ship to approach in the high neutral position, always having control of the rudder available, and flaring out about three feet off the ground by giving the signal and passing the elevator to its highest position. Care must be exercised as to the sequence, for a nose dive might result instead of a flare out, with the corresponding loss of points—and face.

For normal level and inverted flight: the high-neutral point is made to position the elevator for normal level flight and the low neutral corresponds to normal inverted flight; we then have two more positions which will give us a mild, (90°) dive, and inverted loops. The elevator must move

approximately ⅝ inches between extreme positions. The easiest way of entering inverted flight is by means of the following precedure: the engine is throttled down and the elevator is pulsed to its lowest position. The model executes an outside loop from which you recover at the bottom by simply releasing the "button", letting the elevator neutralize in the positions corresponding to normal inverted flight. In this position, all kinds of simple maneuvers, such as, lazy eights, turns, mild spirals, etc., are feasible.

With a good motor control, "grass cropping" inverted flying is possible. This last maneuver is not only nerve racking but also, very impressive as far as the judges are concerned and, believe it or not, quite safe. Anyway, you will quickly learn how to rebuild rudders in a single spare evenning's time! Seriously, though, you need not worry about the invertible dihedral, as with boring regularity the wings assume their correct positions whether in normal or inverted, thanks to the telescopic wing struts. The only warning in this respect is that the wings must be very firmly secured, with strong rubber bands that will not deteriorate with either the fuel used or the sunshine, for weakened bands can cause your wings to separate from fuselage when entering inverted flight.

CONSTRUCTION

The fuselage: Is completely sheeted with medium 3/32 balsa over its ¼ square balsa framework. The two sheeted sides can be assembled upon a flat building board, thanks to its rectilinear top profile. The cabin is assembled with very hard ½ square balsa, properly aligned, and then the rest of the structure, including the reinforcements, is added. Next are the front and back turtle decks. It is necessary to install the motor control escapement before installing the front turtle deck. This will save time and trouble later. You probably will find that the same can be said for the rudder escapement and the elevator servo. The whole airplane, including the fuselage, is covered with heavy Silkspan, or, even better, silk. Now is the time to do this with the fuselage, doping and sealing it properly.

The landing gear and the inspection doors are next installed. The latter are made of thin aluminum, bent so as to fit over the framework, and with two clothes snaps in the back. There are three inspection hatches: one for the motor escapement, one for the radio equipment, and one for the servo and escapement. The bent edge faces the front. The radio equipment is mounted on a sliding panel which is positioned against the foremost cabin bulkhead. The motor is mounted on false bearers, which allow for any adjustment that is found to be necessary, and also allows the rest of the plane to come unscathed from any "accidents" you might have. Both engine and fuel tank are mounted under an aluminum turtle deck, which allows fast checking of these components, similar to full-size practice. This turtle deck is secured by means of springs. The gas tank should be of an appropriate capacity—from two to four ounces. Either the "clank" type popularized by deBolt or the Henry Eng. "clunk" type common to "Smog Hogs" will do splendidly, allowing the full range of possible maneuvers to be executed without the worry of improper feeding.

Wings: The two half wings are perfectly symmetrical and could be interchanged were it not for the wing strut mounting. The ribs are made of medium 3/32 inches balsa. The wood sizes are indicated in the plan. The spars should be medium hard,

(*Continued on page* 46)

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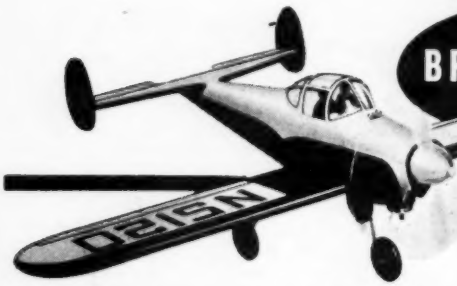

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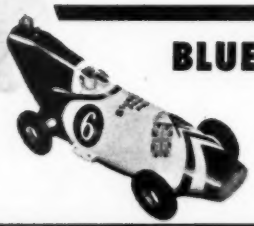

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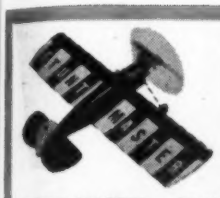

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the same as the leading edge. All the rest should be medium-weight wood. The rib corresponding to the strut support should be made of two regular ribs cemented together. The inboard end rib is made of ½ inch hard balsa, backed with ⅛ pine. This last reinforcement is so that the 3/16 dowels do not cause an enlargement of the holes through long and continuous use. The strut support should be made of dural and firmly cemented and tied to the main spar of the wing. Finally we cover the wings with silk, doping carefully so as not to cause any warps. The drilling of the holes for the dowels will be explained in detail later.

The wing mount struts are of 5/16 dural tubing, with one end flattened for its attachment to the fuselage. This attachment can be made with a bolt and locknut, but I prefer preparing a ⅛ x 5/16 copper rivet with a hole in its end. This is passed through the strut and support and secured by means of a bolt and locknut that end of the strut has an insert made of bronze and screwed in, with a ⅛ hole drilled in it. Through this hole goes a ⅛ steel wire, with an eyelet bent into one end and a screwed top fastened to the other. Two small springs dampen the shock of the abrupt change of dihedral. The strut is fastened to the wing support by means of a bolt and locknut that passes through the eyelet bent into the wire and the wing strut support. Some tolerance should be allowed for at this particular connection.

Control surfaces: These are of simple construction, being made of ¼" lightweight sheet stock. They are removable being fastened to the fuselage by means of rubber bands. The elevator is secured to the stabilizer by means of the popular thread hinge that is sewn in the shape of an eight. The elevator control horn must be securely fastened to the surface. If the elevator control horn came loose, the elevator would go into an undampened flutter, resulting in a rather messy nose dive. The horn cross wires are 1/32 music wire. The rudder hinge is a music wire, inserted at the quarter-chord point to balance the rudder aerodynamically. The fin should be well filleted, so as to direct the air stream entirely to the rudder. The whole unit is also covered in silk, and well doped, taking care that no warps appear.

The final, and perhaps most delicate, step is that of the drilling of the holes in the wing root for the insertion of the dowels that maintain the wing in its correct position. The simplest way is to prop up the fuselage so that its top is parallel to the surface on which it rests, and then to position the wings with between three and four degrees of positive incidence. The positions of the holes are marked on their proper places and the holes carefully drilled. These holes should open up from root to tip, in the shape of a funnel, to allow for the arc of motion of the dowel inside of them. Extreme care should be exercised so as to secure both wings with the same incidence.

The model now is finished. A durable paint job is a worthwhile addition. Our original was light grey and red.

It is recommended that the elevator be connected in the way indicated and that the travel of the same be short, say, ¼ in. for the first few flights. The center of gravity should be about 1/3 of the chord from the leading edge. Only when complete familiarity is achieved with both the model and the radio equipment, should the inverted flights be attempted. An "inverted" accident at a low altitude can be rough on the model. If care is exercised, this won't happen. It is my sincere hope that you will derive as much pleasure and satisfaction from this model as I have.

The 1958 Nationals

(*Continued from page* 11)

job in playing host to the 1958 Nationals. The officers and men of the Glenview Naval Air Station should be proud to have given forth such an efficient and untiring effort.

Peter Sotich put in a remarkable job as Contest Manager. He was assisted by a hard-working staff of AMA officials in Earl Witt, Eve Biddle, Maurice Teter, Keith Storey, Paul Bartel, Russ Nichols and Carl Wheeley.

This year was the first time since the 1948 National Meet at Olathe, Kansas, that the contestants were housed in one big hangar, 2,000 bunk beds, end-to-end and side-by-side. A statistic: 206 transistor radios in one big bedroom! A light-sleeping contestant professed they snored one-eyed to the "purple people eater." Years ago at the Nationals we thought it was two senior contestants, a McCoy 60, and a six-pak of Pepsis that kept the barracks on its toes. Those were the old days when Newberger and Storey were burning 'em up in speed. Dennis Davis was poking his Hogans out

of sight in free flight . . . and the great Jim Walker was cutting the Navy's grass with a radio-controlled lawn mower.

At a Nationals you have to be on guard for hangar rumors. They can run thick and fast . . . like the controlline scale modeler, Ernest Berke, who had a remarkable metal-assimilated P-47 Thunderbolt. The rumor had it that you could plug in the ear phones in the cockpit of this Ukie Scale and receive the dits and das from the tower at the Naval Air Station. This was not so . . . all we got was a local Chicago disc jockey playing: "I'ma Sittin' Ina Park With a Bird On My Head."

By far the biggest show at the Nationals was the Radio Control Event. It is positively amazing what these modelers are doing with these big multi-channel radio jobs. Most of the better RC ships were low wing designs with an almost symmetrical wing and stabilizer airfoils. Howard Bonner explained to us that the low-wing design allows better ground control due to the wing being as close to the ground as possible. It makes sense that this would tend to minimize ground gusts and cross wind while taxiing. Bob Dunham, Howard Bonner and Bill Deans came in first, second and third winners in the multi-channel event. These top fliers are all members of the Larks RC Club, Los Angeles. The models of these three fliers were practically identical . . . mostly due to the fine design influence of Fred Dunn and Howard Bonner. Other notable fliers in the multi event included Dr. Walt Good, Dale Root and Harold deBolt. There were many good fliers and many well-built, beautiful models. We saw Keith Storey at two in the morning repairing his RC Pylon Race entry. Keith had clobbered a barrier on a late-at-night test flight. He came through and still placed in the event with cardboard repairs.

The Jim Walker Trophy and the National Stunt Championship went to Art Palowski, a senior flier. Art also won this award last year at Willow Grove, Pa. Eddie May, Durham, N.C., turned in a beautiful pattern to win the Junior Stunt Championship. Open Stunt was won by Bob Randall. George Aldrich, who is one of the finest stunt fliers of all time, struck out and was eliminated the first day of stunt trials. Seems George had an engine come apart during his pattern . . . head bolts and all. Hi Johnson drew a big crowd at the stunt circles with his fleet of beautiful Stuka models. These Stukas were smooth performers . . . and plainly show the fine design ability of Johnson. In general, most all the stunt models were sleek, with good aerodynamic qualities. It seems the designers of these stunt originals have latched on to the Aldrich design formula.

The Open Stunt event was marred by the trial of an elimination system to cut down the number of entries to be judged for first place. The entries were divided into three circles and the top five men from each circle were selected to fly off for first place. The foul-up came when several of the nation's top fliers were picked to fly in the same circle. When the cut-off came some of our past National Champions were eliminated from the fly-off, while in other circles relative beginners were given the OK and stayed in the running.

The free-flight activity began on the runways of the Naval Air Station, but the real free-flight story happened in the woods and lakeside residential areas near the base. In some of the free flight events the winner was the marathon runner who could scale an eight-foot fence, dash into the woods, climb a tree, and get back to the field before the event closed for the day.

Bob Hunter's new "Satellite" design was probably the most exciting new free flight design at the meet. The Satellite design won five first places for Junior San Valeers Club. Another good design won first place in both the Half A and the B-C event for Ed Miller, Armona, Calif. Ed's models were very clean, with a huge 60% stabilizer. Miller calls his design the "Texan", but could be called the "Hogan-Rod" since it looks like 50-50 ingredients of the Ramrod and Hogan designs. Chuck Diller, Riverside, Calif. won Class A Free flight and set the high time of the entire meet with a hot Torpedo 19 powered Ramrod 600.

The free flight modelers who competed at Glenview are still asking why Class B and Class C were combined as one event. Most of us know that sometimes events are combined to speed and ease the operation of a meet. However, most of these free flight people are not satisfied with this easy-operation answer. They could not help but look across the field and see a bare dozen entries in the helicopter event, and a scanty 23 people competing in free-flight scale. They have a good argument and it is true that 230 modelers wanted to compete and fly in Class C as a separate event.

In spite of the above slight fiasco, the modeler or entrant into a national meet should have comfort in knowing that our big national meet each year is and always will be conducted for the modeler. They try to please as many different kinds of fliers as possible. Sometimes this is almost impossible.

You have to appreciate our healthy democratic system when you see competing model industry people at a national model affair . . . working together but for one purpose . . . not to sell the most of any one engine or product, but to help make a good meet for the competing model flier. We saw a huddle in one end of the workshop hangar . . . part of the All-America industry team . . . Bill Effinger, Johnny Brodbeck, Hi Johnson, Duke Fox, and LeRoy Cox.

By Thursday of a Nationals you start to get tired and this is true whether you are a competing flier or working with a camera. On this Thursday we were very tired and had made our way back to our quarters to shower, have a cold tea and shed the sweaty clothes. We had hardly dropped the camera gear and the note pads when from a connecting room came an un-sunburned face and a booming voice, "Gilliam, I've caught you goofing off again!" It was Bill Winter, who had flown in from New York after making up an issue to see first-hand how the meet was going. "I've only been here two hours," Bill said, "and what is this I hear about Gilliam covering the meet from a top story barracks window with a long telephoto lens?" We explained to Bill that this wasn't true and took off a grimy tee shirt to show the "chigger" bites to prove it. "We have been in the woods all day, Bill," we said. Obviously this didn't impress him because he came back with the remark: "What in the devil were you doing in the woods . . . you know RC and Ukie Scale aren't flown out there." "We know," we said, "but we shot stunt and RC yesterday." "I hope so," he said, half-pleased. Then we explained how much fun it was photographing tree tops. It is really fun when the tree is full of models! One of the best trees yielded two Ramrods, a high thrust line something-or-other, a Zeek, a Spacer, and a mouldy Civy Boy (From 1954, Paul? Ye Ed.).

Men and Ships

(*continued from page* 13)

had already mastered flying an airplane again and driving a car before being invalided out of flying duties with the RAF—he gradually acquired skill as a golfer, oddly enough more difficult for him than piloting or driving.

Still, the desk job rankled, and with the coming of war in 1939 and the Air Ministry more inclined to cut the red tape that previously had prevented him from resuming flying duties, he argued his way in front of an RAF Volunteer Reserve Medical Board. The President of the Board, impressed by his enthusiasm and determination, persuaded the doctors to send him for another flying test at the Central Flying School. This passed successfully, there followed a refresher course to master new features, variable-pitch airscrews, retractable landing gear, increased instrumentation, that had appeared on Service aircraft during the eight years since his crash. Finally, he wangled a posting to a Spitfire squadron commanded by an old RAF colleague.

This was the time of the "phoney war", with Germany lying in wait in front of the Maginot Line. The "Spit" had yet to prove itself in battle, though judged the finest fighter of its day, and squadron sorties were confined to convoy escort over the Channel and like duties.

Then came the German invasion of the Low Countries and France. Bader was a flight leader now, and made his own first kill, an Me 109, over the beaches of Dunkirk.

In the lull after Dunkirk, Bader was promoted to lead a Canadian Hurricane squadron, 242, which had been mauled in the bitter air fight in France. Quickly Bader had the Canadians worked up to top morale, chafing at the bit as they watched the neighboring Southern Group 11 become progressively engaged with massed enemy formations in the opening phases of the Battle of Britain. Fighter Command could not show its hand too soon; there had to be a reserve behind the battling Southern squadrons, and 242's 12 Group were ranged to ward off air blows at the Midlands' vital industrial areas.

But one day, Bader exultantly at their head, 242 were drawn into the vortex of the battle. New tactics and techniques—the dive into the midst of an enemy formation to scatter it, the combined handling of three, even five, fighter squadrons under a single leader—sprang from Bader's fertile brain during the ensuing weeks. Not always was he right, but fighter tactics during the battle, and afterwards when Fighter Command began to take the offensive, owed much to his imagination and combat experience.

Gradually the great air battles over England fizzled out. Goering was beaten, the invasion postponed. And early the follow-

(*Continued on page* 52)

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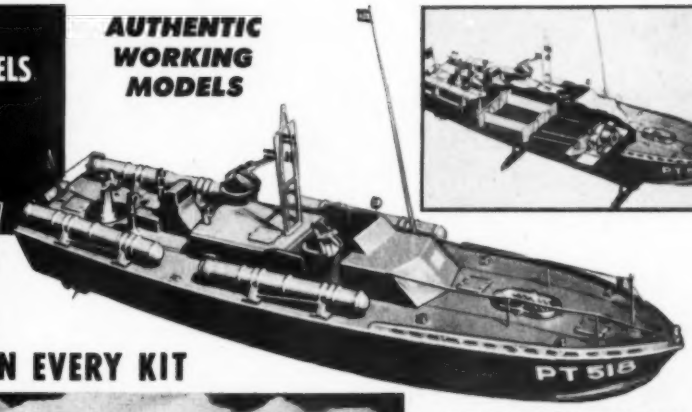

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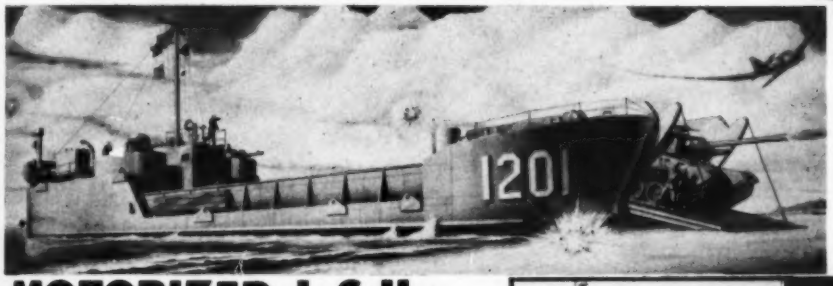

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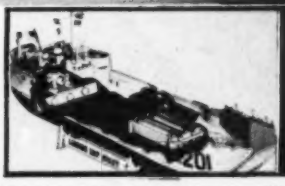

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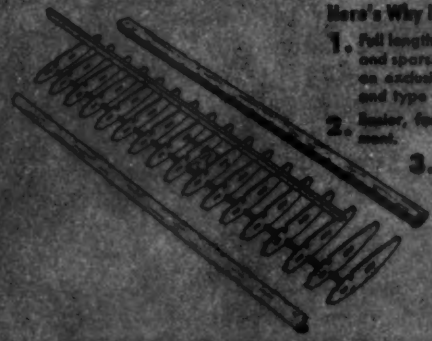

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ing year began the first offensive sweeps by an RAF grown strong enough to challenge the Luftwaffe over its own back yard. Bader, now a wing commander, went to Tangmere to organize a three-squadron wing (Nos. 145, 610, 616) for the new role.

As the sweeps probed into France, sanguinary air fighting developed as the defending Me's came up to give battle. Bader's personal score began to mount again. The bloodthirsty brand of confidence which had infused 242 Squadron now pervaded the Tangmere wing, and even Bader's wife came to think of him as bullet-proof, invulnerable.

But on August 9th, 1941, it had to be broken to her that Douglas Bader was missing. He had taken his wing across the Channel, climbing to 30,000 ft. to get the advantage of height. And there below was a sitting formation of Me's. Down sliced the Spitfires for the kill. Bader lost the rest of the formation, shot down two Huns and, banking away from the second, collided with a third which sliced off the whole of his rear fuselage.

Struggling, half in and half out of the plane, he tugged at one of his useless legs caught up with something inside the cockpit. Screaming downwards, the stricken Spitfire dragged him with it. Then something gave way and he was falling freely at last, tugging at the ripcord. Swaying beneath the open chute, he glanced down at a flapping empty trouser leg–his metal leg had pulled off and was plunging to earth with his airplane.

The earth was suddenly rushing up to meet him; a blow as his useless remaining leg doubled up into his ribs with landing impact; then nothing. Fragmentary impressions of being hoisted up, bumped in a car, then up some steps, a cool building, and on to a casualty couch. A German doctor bending over him, staring in consternation at his legs–one a stump, the other, bent, made of metal–and then at the medal ribbons on his chest. "Ach", he said softly, "We have heard about you".

• • •

Bader flew both the great British fighters of the period. Over Dunkirk he piloted the Spitfire I; during the Battle of Britain the Hurricane; at Tangmere the Spitfire IIA and IIB, and then the VA and VB.

The early Spitfire I's he flew had eight .303-cal. Browning machine guns, did around 362 mph on 1310-1440 h.p. (combat rating) from the great-hearted Rolls-Royce Merlin II or III, rolled at 14 degrees a second at 400 mph, had a wing area and loading of 242 sq. ft. and 24 lb. sq. ft., climbed to 20,000 ft. in 9.4 minutes, had a combat range of 395 miles, and normally weighed about 5,280 lb.

The Spitfire IIA and IIB had the 1175 h.p. (1280 combat) Merlin XII running on 100 octane fuel, were armed with eight Brownings, or four Browning and two Oerlikon-Hispano cannon, respectively. Armor plate (73 lb.), bullet-proof windscreen, and self-sealing tanks (shared with later Mk. I's) and a three-bladed Rotol constant speed airscrew were fitted.

Later that year, the new Mk. V version began to reach the squadrons. Main change was to the motor, Merlin series 45, 46, 50, 55 and 56 being fitted during the production run, giving combat ratings from 1415 to 1585 h.p. at various boosts and altitudes. Top speed was raised to around 375 mph at 21,500 ft. on the fastest model. Fuselage longerons were reinforced, armor weight increased to 129 lb. (VA) or 152 lb. (VB), and late aircraft had metal ailerons which made aileron control much lighter. The VA still carried eight Brownings, the VB two cannon and four Brownings; the

VC had a new "universal" design of wing which could accommodate either of these armament combinations, or four Hispano cannon.

Bader favored the machine-gun armament and was flying a VA, while most of his wing had VBs, when he was forced down in August 1941. The tone three-view drawing depicts as nearly as can be ascertained how his VA looked on that day. As a wing commander he had the privilege of putting his initials on the side of the machine in place of the regular squadron code letters, so that his plane could be recognized and rallied upon during and after combat.

Royal Air Force camouflage at this period was in a dark green and dark brown (earth) pattern on the upper surfaces, with a pastel shade of blue-green (officially Sky Type S, or "duck-egg green") on the undersurfaces. The spinner and an 18 in. band round the rear fuselage were also Sky Type S. Bader's machine carried the serial W3185 in 1¼ in. thick letters on the rear fuselage, and a wing commander's pennant (royal blue V, light blue ground, two red bars) below the windscreen. Fuselage roundels were blue (outer), white and red, surrounded by a yellow circle; top wing roundels were blue (outer) and red; and normal blue-white-red roundels were on the wing under-surfaces. Fin stripes were red (leading), white, blue. Bader's initials were probably repeated in black below the motor cowling nose. Airscrew was dull black with 4 in. matt yellow tips. Black ¾ in. lines were painted along the wing forward upper surfaces, and fore and aft on the port wing inboard at rib no. 4, to indicate walkway boundaries. Trestle points, stenciled notices, etc. were black. The letters "DB" on the fuselage sides were grey.

Figures for the VA were: Span 36 ft. 10 in-; length 29 ft. 11 in.; height 11 ft. 5 in.; wing area 242 sq. ft.

• • •

Bader still tried to wage war in captivity by attempted escapes and by tormenting his jailers. After the war he finished his service career as Group Captain with most of the high decorations, including the D.S.O. and D.F.C. with bars, Chevalier of the Legion of Honor, and the Croix de Guerre with Palm. His personal score was 22½ enemy planes confirmed but this record, although meritorious, did not reflect the main achievements of his war career. More important were the impact of his irrepressible spirit and courage on service and public morale, and of his keen mind on tactics.

The influence of his personality and example has continued into peacetime. In 1955 Bader was made a Commander of the Order of the British Empire (C.B.E.) for his work in inspiring other handicapped people to overcome their disabilities. Wherever he goes on business (he is again with Shell, but this time controlling their aircraft fleet and often flying himself) he makes a point of looking up those who have to surmount the same misfortunes. He insists that his war record is hardly of unusual merit; but the mastery of his steel legs, his stubborn, tenacious fight to be as normal, whole men, his brilliant leadership, and the inspiration his example affords to countless handicapped thousands the world over, surely are.

(Acknowledgements: Air Ministry records and newspaper files; Imperial War Museum; Vickers-Armstrongs (Aircraft) Ltd.; THE AEROPLANE and AEROPLANE SPOTTER; REACH FOR THE SKY by Paul Brickhill; Bruce Robertson, Esq.; OFFICIAL HISTORY, ROYAL AIR FORCE; Shell.)

Let's Get (The Engine) Started!

(*Continued from page* 36)

clamped in vise, nailed to edge of workbench or side of wooden box. Engines with beam or side mount lugs need a fancier mount block. Cut a notch in a piece of 1 x 3 x ½" plywood to fit engine crankcase and bolt engine to this. Clamp in vise or nail onto top of bench or box.

To summarize what's needed: engine (naturally), fuel, fuel pump, 1½ volt dry cell (1 or 2), booster wire and clips, propeller, wrench, test mount block, screws or nuts and bolts.

Better to run the Little Demon outdoors because model engines create considerable noise, smoke, smell and oil from their exhaust and the family might not appreciate the bedlam. If you have to run the engine indoors, open the windows wide. Better still, aim the prop blast out the open window, if possible.

All set? Check over the set up before trying to start. Engine securely mounted. Booster batteries wired in parallel. Position prop on shaft at about 2 o'clock against compression and tighten prop nut firmly. Check glow plug by connecting booster wires. Look in exhaust port to detect reflected glow inside cylinder. If glow is difficult to see, remove plug and connect boosters. Element should glow brightly. Replace glow plug and washer, tighten with wrench snugly, finger tight. Don't bear down hard. The steel threads on glow plug will strip the aluminum cylinder head threads easily if too much beef is applied. Now fill tank with fuel. Separately mounted tanks should have top level with needle valve body. Next close needle valve. All needle valves have right hand threads. Turning clockwise moves needle into body, cutting fuel flow (lean mixture); turning counterclockwise backs needle out of body, increasing fuel flow(rich mixture). Glow-plug engines have a particular needle valve setting at which the engine runs best. Turning the needle valve a half or full turn off this setting will speed up (lean) or slow down (richen) engine somewhat, but the best setting is what you're looking for.

Manufacturers' instructions will state the starting setting as: "Open needle valve 4 to 7 turns." This may vary a bit with various fuels and climate, but it is a starting point. File a notch on side of needle valve top to aid in counting turns when opening needle valve. With needle valve open recommended amount, flip prop several times while holding finger over intake (choking). This draws fuel from tank into engine. You can see fuel moving through the transparent tubing. Next squirt a few drops of fuel into exhaust port with fuel pump or bulb (priming). Do this with piston down so that fuel gets into cylinder. Now connect booster wires to glow plug. If two alligator clips are used, connect one to very top of glow plug, the other to any convenient part of engine such as mount bolt. Keep batteries and wires behind prop arc. Now flip prop from right to left across top of arc (counterclockwise). There is a definite knack to flipping a prop which must be learned quickly or otherwise battered knuckles will result. Practice before attempting a start. The motion is a combination sidewise flip of finger and rolling of wrist. Do not hook the whole finger around prop blade, use only the tip of first joint.

Manufacturer's instructions usually state: "After the engine starts . . .

(*Continued on page* 56)

But right here is where the fun begins because there's usually many a flip before the engine starts and keeps running. New engines are usually stiff and incorrect prime may prevent an immediate start. Flooding (over-choking, over-priming) can usually be run out of engine by continuous flipping until engine runs. Lack of enough prime will also prevent start, and you can flip indefinitely while nothing happens. The happy balance of correct prime and a few flips to start seldom occurs with a new engine and new modeler. So keep flipping. If the engine makes a squishy plop when flipped, it is probably flooded. If it turns quietly but rather stiffly, it is probably dry. Bad flooding can be run out of some engines by blowing into exhaust port. Another trick is to let the engine sit a few seconds with piston down. If you listen carefully at exhaust port, you can hear oil crackling and burning in glow plug. When crackling stops, this means plug is clear and engine should start on next few flips. Underpriming is corrected by repriming with a few more drops of fuel in exhaust port.

Now, "after engine starts," and after a few seconds running, disconnect booster wires from engine and adjust needle valve. If engine sounds rough and is throwing great clouds of smoke, mixture is too rich and needle valve should be turned in (closed) a bit to leaner setting. Roughness should smooth out and rpm should build up. This is your best running setting. After you stop engine, close needle valve completely and count turns as you do this. Memorize number of turns open, or mark on engine. If engine starts and runs at high speed then quits, needle valve setting is too lean and should be opened slightly. Re-prime to start. While engine is running, experiment with needle valve setting. Usually a full turn either way from best running position will be the range of running settings. Some engines may have a greater range of settings. Most engines start best with a rich setting, then are leaned out to best running. New engines should be run with rich setting to break in and should not be leaned out to scream when first run.

There, that wasn't so bad was it. How are those fingers? Starting checklist:

Mount securely
Booster batteries, wire in parallel, 1½ volts
Prop at 2 o'clock, nut tight
Fill tank with clean fuel
Open needle valve to rich setting
Flip and choke to draw fuel from tank
Prime in exhaust port
Connect boosters to plug
Flip the prop!
Engine starts, remove boosters
Adjust needle valve to running setting

When you are finished running your engine, a little clean-up is in order. Wipe excess oil off engine, prop mount and tank. Empty fuel tank completely. Replace cap on fuel tank tightly, fuel ingredients evaporate quickly, reducing efficiency of fuel. Store booster batteries so clips do not short out, ruining battery. Best to disconnect booster wires from batteries for storing and traveling.

After you have started your engine a few times, you will soon find it easy to follow through the steps outlined. But later on you will also find that your Little Demon seems bewitched and will refuse to perform for you. There are only a few trouble spots to check. Batteries may become weak through age and do not let plug glow hot enough. Wire connections may become frayed or broken. Glow plugs do burn out after a lot of running. Re-

move and check with boosters. Fuel tank, lines, and needle valve body may become clogged with dirt or gum. Always filter fuel before using in engine. Clean fuel is a must. Empty fuel tank after running engine to prevent gum forming in tank. Blow out fuel lines and needle valve body if stoppage is suspected. Keep engine clean. Wipe off after running. If engine is not to be used for some time, plug intake and exhaust with a bit of rag, or wrap whole engine with rag. Store unused engines in dustproof container such as coffee can or glass jar.

Class dismissed.

Radio Control News

(*Continued from page 24*)

Astro Hogs, we believe, three of them Larks. Max Boal (45.6 pts.) took intermediate, but the score was lower than rudder. Actually, intermediate should total closer to multi, Junior-Senior Rudder, Dick Bennett, 35⅝ points; Dick Taylor, open, rudder, 58 points. Scale 88⅜ points, to Bill Bertrand.

• • •

At the East Bay Radio Controllers Boat contest awhile back, Chuck Galletta and Winn Biscay put on a spectacular formation run about 18" apart, using twin 48" cruisers. The only thing that took honors away from them was when Bob Heise ran full throttle right between them from the opposite direction with his ¼A outboard. The EBRC group feels that all judges should be briefed on scoring techniques before each contest in order to maintain uniformity. They advocate some type of award to the judges! With the large number of highly skilled fliers competing in contests today, it will soon take an expert judge to decide between excellent and EXCELLENT. The write-up on the pylon flying done by this group sounds like a page out of the National Air Races in days of yore.

• • •

From the Aerial Robot's the Transmitter, we learn that Ben Ostlind is working on a new job with the aileron servo being placed in the fuselage with a speedometer cable serving as linkage. Five-and-ten cent store brass hinges were found to work fine for the aileron hinges. At a Turlock contest in June, Howard Bonner nosed out Zel Ritchie, who was flying a dual-proportional Multi-Bug, in the pylon races by seven-hundredths of a mile an hour. They really fly them low, bank sharp and measure close in the far west pylon races. Astro Hogs appear to be cleaning up most of the multi events with the Live Wire series holding up well in the rudder only events.

• • •

As we've mentioned many times before, the Larks of Los Angeles have really feathered their nest and appear to be king of the roost when it comes to activities. What other RC club do you know of that will enable a contestant to win a full size Chevy? The 3rd Annual Open RC Contest, sponsored by the Larks on October 18th and 19th at Famoso Airport just north of Bakersfield, Calif. promises to be tops, both in flying and quality of the prize list. In addition to the Expert category for rudder, intermediate and multi, these will be the Novice for multi and rudder-only, Pylon with multi-rudder-only and intermediate combined. They will also give a Sportsmanship Trophy. Ken Willard's new Slo-Poke has a 33" top wing, 27" bottom wing, a wing loading of 3 oz. sq. foot, sports a Cox .020 engine and uses the new CG RX-1 three volt receiver. Slimline pen-

cells are used for power and the escapement is a stripped-down Bonner compound. Most maneuvers are performed at an altitude of less than 25 feet. Ken's success in getting a slow flying plane is to trim it tailheavy, use downthrust to counteract the stall and then keep it flying on the verge of a stall. Wing area is 300 square inches. Keep your eye on this job. Ken flies indoors!

• • •

The North Jersey Radio Control Club, with over 60 active members, was still looking for a recognized flying site back in July. This club, like many others, except some on the west coast, has trouble keeping all flying concentrated in one central area. A common flying site helps keep a club together, lowers insurance rates and is generally much safer and certainly more congenial.

• • •

Jim Thrift sends in the following information on the 4th RC/NC Invitational Meet held in Pulaski, Va., the last few days of June. With over 100 fliers on hand, there was no evidence of ground interference. The 27mc line was full for three days with 50-54mc becoming increasingly longer. No transmitters were turned on until the individual was ready to fly and all flying was suspended several times a day to enable equipment checking to be done. Ships (about 150 of them) ranged from Ascenders, Astro Hogs, Rudder-bugs and Live Wire types to originals. Charles Owens did some spectacular flying with his Triple Threat (MAN, Sept. '57), equipped with Vari-Comps, by doing outside loops and all other maneuvers. Quite a bit of pulse flying was done in addition to multi flying with Schmidt, Bramco and Orbit equipment. Newspaper clippings showed top coverage by the Southwest Times. Editorials and large front page spreads were featured. Other clubs could follow the NC/RC group in having the local CAP groups assist in parking, crowd control, policing and many other jobs.

• • •

From the French model magazine Model Avia, we have translated information concerning an RC job by Raphael De Hertogh, one of the top French fliers. The model which has won awards for the past few years for Raphael has a span of almost seven feet and is powered by an O & R 60, ignition type. The general design is rather boxy with all straight lines, the gear being reminiscent of the old Flying Quaker. The receiver was of the reed type and appeared to be 8 channels, with reed bank and relays being built by Mr. Hertogh.

• • •

Mr. William E. Kenyon Sr., R.D. #2, Manlius, N.Y. sends in some flying data from western New York State. Results of the Syracuse Sky Knights contest put Hal deBolt first in multi, followed by Ed Keck and Ralph Jackson. Intermediate went to Ralph Jackson followed by Dick Scwarz and Herb Tomoser. Rudder only was taken by Vince, Ralph Miller and Bill King with deBolt, Jackson and Keck taking the Pylon event. Ralph Jackson flew the Lancer, described in an earlier column.

At the Flying Bison's meet over the 4th of July, Ernie Kratzet really put on a show with his pylon flying biplane; deBolt kits were in the majority with Bramco 8's dominating the RC gear. Smog-Hogs and Astro-Hogs, plus a few PT-19's were also flown. Dick Branstner flew Ed Keck's ship with slow rolls at 40 feet. On the last roll the nose dropped, with full up, and the wheels picked up a handful of hay on the edge of the field. Nothing like cutting it close. Several Marcy Tone jobs are being built in the Buffalo-Syracuse area.

(*Continued on page* 61)

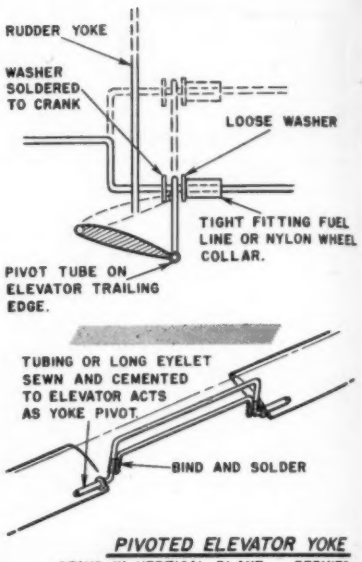


Fig. 1. Yokes, linkage, suggested by John Worth.

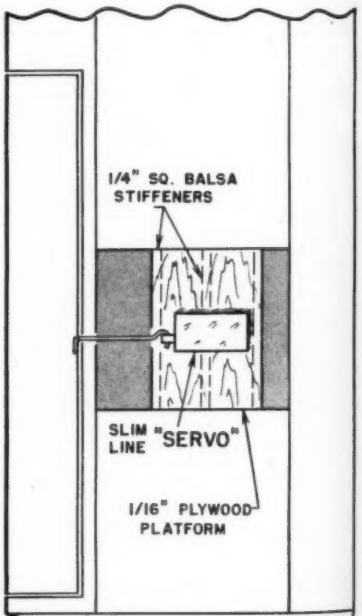
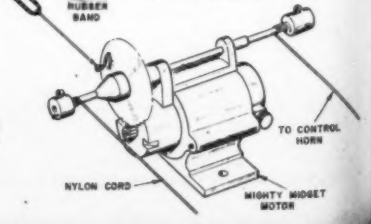


Fig. 3. Slim-line servo, by J. Lewis, ailerons.

Fig. 4. Variable centering action by Jim Martin.



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Complete receiver kit with all tubes and relays. **$39.95**

Complete transmitter kit with tubes, xtal, cabinet. **$74.95**

MARCY Single & Multi Kits

Fabulous new audio system by Marcy Inkmann. Begin with single channel equipment and expand up to six without obsoleting any equipment along the way. Simple filters, instead of expensive toroids, hold cost down. Filters have band width of at least 200 cps, preventing transmitter drift and eliminating adjustment worries.

Single channel MarcyTone Receiver measures 2x2-7/8x1, weighs under 3 ounces. Includes tube, three transistors, relay, filter, all capacitors and resistors. Only. **$17.95**

MarcyTone Transmitter contains two 3A5 tubes - MOPA RF and multi-vibrator audio; Variable Frequency Oscillator, permits selection of 1700 to 7000 cps; slight modification allows unit to be used with other single channel audio receivers; 100% modulation; aluminited case 3x5-1/2x8 inches; expandable merely by plugging in control box; complete with tubes, 13 mc crystal, resistors, capacitors - everything required except batteries and 3 foot section music wire antenna. . **$18.95**

6 Channel MarcyTone Receiver - Basic RF and amplifier unit as well as 6 filters, 6 relays, 8 transistors and all other required components. Weighs under 10 ounces **$53.95**

6 Channel Control Box, converts transmitter above. **$18.95**

FLASH

FCC approves five additional R/C channels. Write us for information on special crystals needed. . . it's FREE!

Ace Radio Control
BOX 301 HIGGINSVILLE, MO.

Ace R/C West
BOX 18 CARMICHAEL, CALIF.

Complete Listing

MODEL AIRPLANE NEWS FULL SIZE PLAN SERVICE

The editor's selection of all time favorites, including completely new combinations of the greatest designs. All types!

PLAN SETS 50c p.p.

52. GAUCHO: RC Stunt, .29-.35.
THE CHAMP: Best U.S. Wakefield.
LAIRD SOLUTION: U/C Scale, .15-.23.
Gaucho, Argentine Champ, does pattern inverted. Champ, a single Wakefield!

1. GIMLET: RC Low wing .049.
ROYONO: Contest FF A&B.
So low wings RC are new? Gimlet started it all!

2. COMPER SWIFT: ½A, FF, Scale.
MULVIHILL WINNER: Rubber.
THE LIEUTENANT: UC Stunt, .29-.35.
If it's scale you like, the Swift is a wonder!

3. BUSTER: Rubber, Sport
THIRTEEN: UC Stunt, .29-.35.
VOUGHT SBU-2: UC, Scale, .19-.29.
Buster. Ideal for beginners on way up.

4. SURE FUN: UC Sport, .29-.35
PROFILE SILVAIRE: FF Profile, ½A.
ZEPHYR: Rubber, Fuselage
Control line on floats. Sport Gassie.

6. HIGGINS CABIN CRUISER: RC Boat, .09-.19.
FOKKER D7: Scale, U/C, .29-.51.
The great all-time favorite? Try the Fokker D-7.

7. WORLD CHAMP GL.: Nordic Winner.
HI BOY: Cabin Stunt, Palmer-Goyet, .29-.35
POW WOW: Bob Palmer stunt, .29-.35
Collector's item—two Palmer models!

8. GEE BEE: Scale U/C, .19-.25.
DRAKE: FF, flying boat, .049.
DURANITA: FF, bipe, .049.
More people built the Drake than any other ship.

11. GAMBLER: Mirror Stunt Winner, .29-.35.
DOUGLAS B-66: ducted fan FF, .049.
B-66, the ducted fan job that beats all others.

12. WHIRLING WINGS: Sikorsky XH-5, .15, 'copter.
BREEZY: Small field RC, .049.
SPITFIRE: Stunt, semi-scale, .29-.35.
P. Schoenky, 'copter master-his Sikorsky!

13. T-CRAFT: FF scale, .049.
FENO: Combat, stunt, .29-35.
PADDY'S WAGON: Contest FF, .049.
Paddy's Wagon—one contest job ok for beginner.

14. HEATH PARASOL: RC, FF, Scale, .075 .09.
GUARDIAN: Nats carrier winner, .29's.
SHARPIE: FF Sport, .02-.049.
—Guardian a dilly.

15. RE-8: WW1, U/C. .29-.35.
FLAPPING WINGS: Rubber, ornithopter.
BOOMER: FF, sport, pusher, .049.
Can planes fly like birds? Ornithopter sure does.

16. DRAGGIN: U/C Stunt .049.
BLACKBURN: 1912 Scale FF .049.
ASCENDER: Contest FF .049.
Wind in the wires. Goggles. Oh, that Blackburn.

18. PAACKHORSE: PAA Load FF .15.
AIRNOCKER: Scale, FF .049.
What model hit the jackpot? Airknocker—the Champ.

21. FAST MILER: U/C Proto, .29.
PEE WEE PAL: .02 FF sport.
THE VICTOR: RC, RUD., .15-.19.
The Proto Racer is tops; 1200 flights on Victor.

27. FLAMINGO: RC Amphibion, .15-.23.
UPSTART: Best B-C FF, on .29-.35.
NACA planing hull make Flamingo stand-out RC. UPstart—it goes!

40. MUSTANG: U/C Scale, .29.
BI-GONE: Sport, FF, ½A.
GLIDERS FIVE: HL Sheet.
Mustang, Jim McCroskey's Nats winner. Bi-Gone, nifty bipe.

42. TENDERFOOT: 1/2A, FF, beginner
BIG D: FF, delta, .049-.15.
WESTWIND: RC, 1/2A, low wing.
Three stand-outs—good but different!

43. EQUALIZER: .15 to .19 multi, RC.
QUICKIE TRAINER: Speed, .29.
AMAZOOM: FF, contest, .15.
deBolt's best, the Equalizer? Amazoom—Stan Hill's hi-thrust.

44. CONVAIR'S DELTA: Jetex FF.
LIL DYNAMITE: .15 stunt, UC.
SWAT: ½A, FF, contest.
A trio of exceptional planes.

45. ASTRO-HOG: Multi RC, .29-.35
MITCHELL: Profile, .09's, .15's UC.
Dunn's low wing radio—tops! Nothing matches this multi. The Mitchell a fine flier.

47. FOKKER E-3: 1/2A, FF, Scale.
NAVY RACER: Rubber, semi-scale.
WOODY: .29-.35, UC Combat. Hot!
E-3, beautiful model, fine flier.

48. SPORTCOUPE: .09, U/C, Stunt.
WHATIZIT: .35, Combat, Wooten.
SWIF-F-FT: Jetex, two sizes!
Whatizit, settles fuse-wing debate!

49. CONQUISTADOR: .29-.35, U/C Stunt.
TWO-STAGE ROCKET: Jetex (2).
Stunter is a thing of beauty, and it flies as well as it looks!

50. DUMBO: PBY Scale, U/C, .19's.
FRENCH OLDTIMER: 1914, ½A, FF.
Dumbo, the Catalina, man-sized ukie, takes off, lands on water or ground.

51. AMERICANO: .15 FF, by Blanchard.
BOMARC: Scale, Jetex, missile.
CUTLASS: Sport U/C, .049's.
Scorpion power makes Bomarc terrific flier. Americano is National Champ's very latest.

Limited Supply of Plans Listed Below. Order Early! Check Correct Number on Coupon.

- 22. Mooney Mite, '55 Rambler, Waco Cabin
- 23. Humdinger, Old Faithful, Cessna 180
- 24. Aero Bat, Snoopy, Seagull
- 26. Corsair, Gyro-Glider, Santanita
- 29. Cougar, '55 Nordic Winner, Dizzy Boy
- 30. Great Lakes Trainer, Triple Threat RC
- 32. Mig-15, Fifinella, Coquette
- 33. Skyraider, Dunwoody's Nordic, Flexi-Bull-It
- 34. Corben Super Ace, Cessna 310, Profile Lightning
- 38. SE-5, Curtiss Robin, Nobody

NO STAMPS PLEASE **PLAN SETS 50c p.p.**

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Enclosed is _____ for plan sets numbered in boxes below

PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #

Please print your number DISTINCTLY in box for each plan you desire.

PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #	PLAN SET #

List additional plan orders on separate sheet.

NAME PLEASE PRINT

ADDRESS

CITY ZONE STATE

Constant mention is made in the west coast RC papers concerning keeping the flying fields free from litter. Seems that this is an international problem. The British magazine, Aero Modeller ran an editorial on the subject, pointing out the need for fliers to clean up after a meet or get-together. After all, they stated, if you can manage to bring a full can of fuel onto the field you surely have enough strength left to remove the empty can.

• • •

RC flying in our neck of the woods, Poughkeepise, N.Y. continues each Sunday and the old gas-tubers are still holding up fine. Kelly Day is persuading more and more fliers to switch over to his transistorized, relayless "two-tuber," using the CK-1054 as the detector.

• • •

Those of you with high-lift wings and special props and fuel may have attended the Annual Rocky Mountain Regional RC Contest in Albuquerque, New Mex. on November 1st and 2nd. (Contest Director, J. F. Pierce, 2607 West 22nd St., Amarillo, Tex.) We mentioned the wings, props and fuel because it is recalled that a year or two ago some of the west coast boys hopped over to Albuquerque for some RC flying and really noticed the difference a mile of altitude can make.

• • •

TECHNICAL TOPICS

The big news, as reported briefly on page 34 of the last issue is the new FCC regulations. The minimum age limit of 12 will gain many newcomers to the RC field. The frequency spectrum is such that closer tolerance on the crystal is needed and more selective receivers will be required. However, do not be misled into thinking that you must have a super selective receiver to enjoy RC work. True, this will be needed if the entire frequency allocation is used in the same locality at a given time, or if you have to fly in the vicinity of power interference sources on 27.255 such as traffic lights which can operate receivers close to that frequency.

There are many, many fliers who either fly alone or in very small groups and who can continue to have plenty of fun and success with the present equipment. On the other hand, we are now on the threshold of a new era in equipment design. In addition to superhet circuits being worked on by some of the designers and manufacturers, "converters" are being investigated which, when applied to the front end of a receiver, will vastly improve selectivity. When it comes to superhet receivers, our British friends are well out in front. They having designed and successfully used them for a number of years.

We were never too sold on pulse systems for plane work, although many flights have been witnessed which were excellent. This statement does not include the WAG system but rather those operating from a single-channel receiver. The Simpl-Simul presented by John Worth was built, due to the fine success of the system over a long period of time. Before completing it, we checked with John to see if he had any modifications or improvements on it since the articles were written. Fig. 1 shows the new type yokes and linkage suggested by John. Less friction is claimed, resulting in more power to the control surfaces. John mentions again that plenty of power can be used to good advantage when employing the S/S system. An increase from a .15 or .19 to a .25 to .29 is about right.

• • •

Another thought on the new FCC regulations is that a number of RC'ers might

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decide to build 30 watt transmitters on 27.255mc. Heaven forbid! In the first place we have yet to see proof that anything in excess of three to five watts input is needed to operate a properly designed receiver, and secondly, this amount of power could cause interference between operating sites located several miles apart. Only need for this much power that we can foresee is in operating a diode detector receiver. However, with transistors now available this should be unnecessary.

Your editor once told us of a flight made with Gramps, so high that the plane had no distinguishable shape. After landing, it was discovered that a three-watt transmitter had detuned so badly that the field strength meter would not work. Control was perfect! This assumes a normally sensitive, properly tuned receiver.

Fig. 2 shows the Delta wing Zoing III as designed by Bill Poythress, Kingston, N.Y. We have seen several models of this design and glide tests were impressive. Bill flies these jobs with .020 engines and his latest model uses two .020's in tandem. With greatly reduced torque, maneuverability and speed is said to be exceptional. With a total wing area of 201 square inches, and a useful area of about 160, the flying weight with a Controlair SM-1 and a Simp-Simul system for elevon control, the flying weight is eight ounces. Although no gear is used, the model will ROW and has taken off from short grass.

• • •

From the International Radio Controlled Models Society bulletin we learn that there is a fair amount of interest in transistorized DC converters, similar to the B & S converters in this country. Data given indicates that 10 and 14.5v are popular input voltages with output voltages ranging from 30 to 225 volts. The main disadvantage to these particular designs was the low efficiency, which ranged from 30 to 55%, as compared to efficiencies of American designs of up to 90%. There is an increase in the amount of home-built equipment in England, including equipment for the 465mc range. With talk in this country of trying inertial guidance on RC models, the English builders have tape controlled (tape recorder arrangement) boats.

• • •

Mr. James Lewis EMC, U.S.C.G., 35 Surrenden Street, Portland, Me. suggests the aileron hookup shown in Fig. 3. The system uses two of the Slim-Line servos, giving individual aileron control. Advantages claimed are short linkage and a fast compact mounting. The units are mounted on 1/16" plywood between two ribs, with ¼" square balsa for stiffeners. Motor polarity is reversed on one servo. This system has had quite a bit of flight testing on Jim's Smog Hog and is being installed in an Astro Hog. Build a small trap door on the underside of the wing for easy access.

• • •

Jim Martin, 515 Dunn Avenue, Maryville, Tenn. was concerned about obtaining a centering action that is strong at the center but weaker at the extreme position. This is when using a Mighty Midget motor for a proportional actuator. Success was had when Jim and Hoyle Long made the windup shaft having a tapered drum. When the line connected to the swivel starts winding up on the large diameter of the tapered drum you get maximum output. As the cable goes down the taper and onto the smaller diameter shaft, there is less centering action due to the small radius. The drum was made by winding a piece of masking tape, cut to a long taper, onto the shaft. Length of tape and taper will depend upon what you want, the drum finally being trimmed to shape with a razor blade. This method of making a drum is quick and easily adapted to experimental use. The DC/RC Newsletter carried this information.

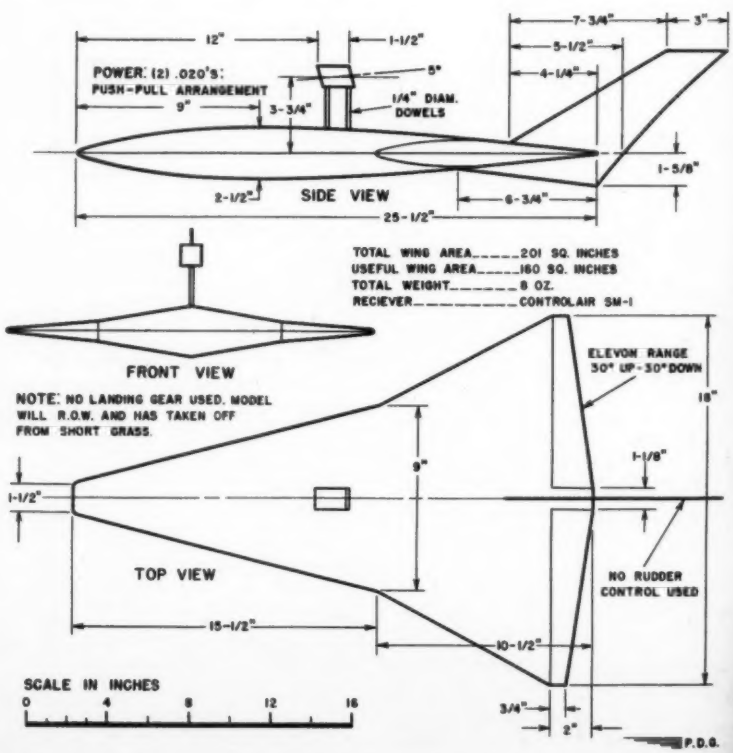

Fig. 2. Zoing, a missilelike delta by Bill Poythress was RC'ed by two .02's in tandem.

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In Berkeley Kits you get the "extra"; extra detail on the plans and decals; - extra hardware found only in Berkeley kits; - extra precision in engineering and structure; - and above all that, is the extra fly-ability that has made Berkeley World famous.

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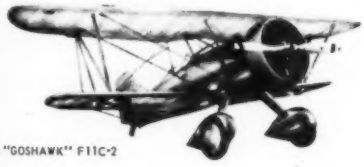
CURTISS SBC-3 "HELLDIVER"

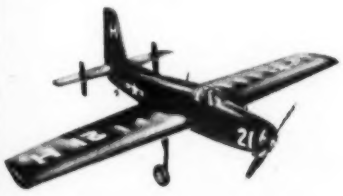
REPUBLIC "P-47 THUNDERBOLT"



CURTISS "GOSHAWK" F11C-2

GRUMMAN "F-8-F BEARCAT"

NORTH AMERICAN "T-28"



GRUMMAN "GUARDIAN"

NORTH AMERICAN "AT-6 TEXAN"

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For .09 to .19 Engines – 33" Wingspan
Metal Ring Cowl, Rounded Edge Planking

CURTISS SBC-3 "HELLDIVER" $5.95
For .09 to .29 Engines – 25-1/2" Wingspan
Metal Ring Cowl, operating flaps, rounded edge planking

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For .09 to .19 Engines – 26-1/4" Wingspan
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For .23 to .36 Engines – 30" Wingspan
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36" Wingspan—For .19 to .49 Engines,
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For .14 to .29 Engines – 33" Wingspan
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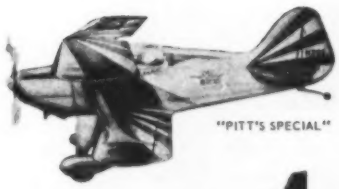
A new design throughout. Rounded edge planking



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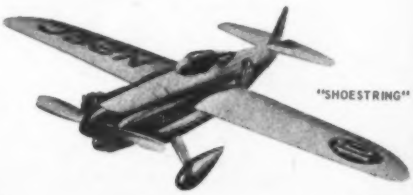
"MINNOW"

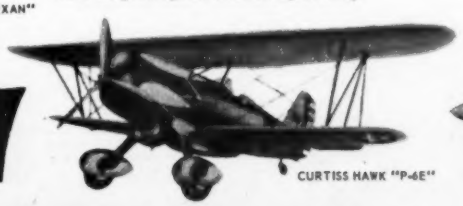
BEECH T-34A "MENTOR"

CESSNA "195"



"SHOESTRING"

(*) These kits feature Berkeley's Rounded-Edge Balsa Planking for easier "solid appearance" construction.



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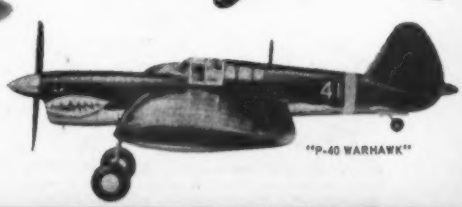

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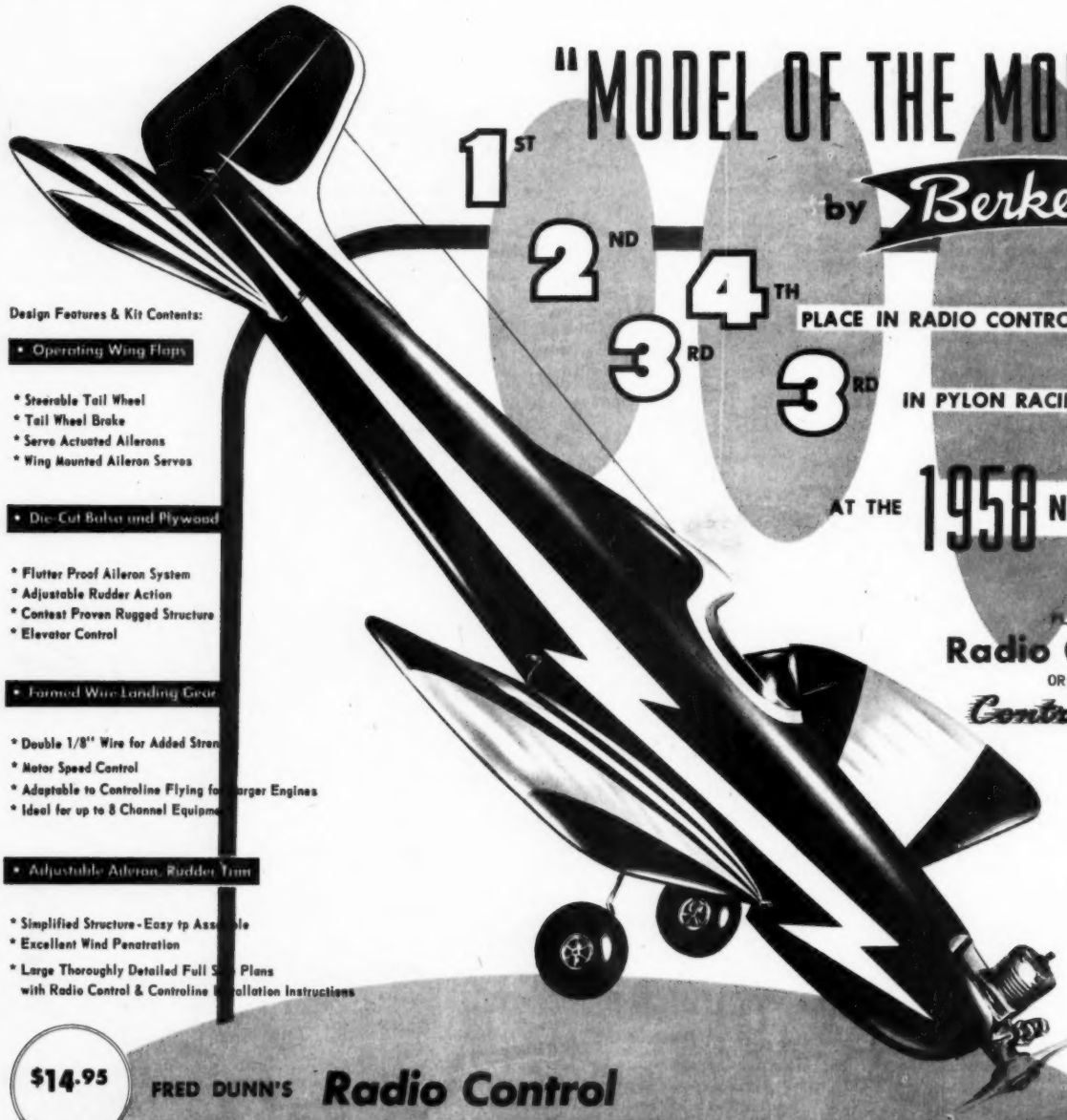

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To prepare for the production of this new FOX 15, the company has moved into its new factory with approximately 43,000 feet of floor space. New machines have been purchased and operators have been re-trained for work on this model. Everything has been done to facilitate the manufacture of a FOX 15 of superior precision and operation. Initial tests indicate the new FOX 15 will almost equal the 19's in performance.

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YOU'LL BE GLAD YOU DID

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RPM: 14,000 with 8" diameter, 4" prop.

1. HARDENED AND GROUND CRANK SHAFT
2. ⅜" DIAMETER MAIN BEARING
3. LEADED STEEL CYLINDER—GROUND, HONED AND LAPPED
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5/8 SCALE DESIGNS

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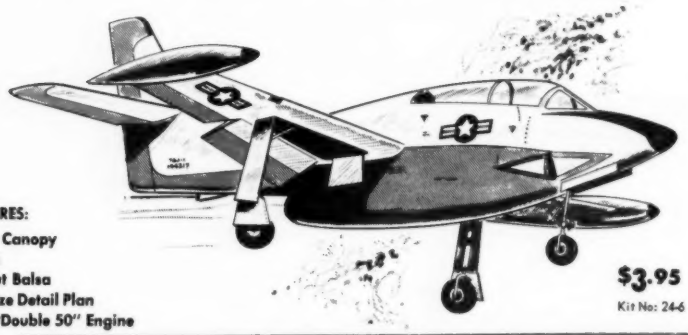

Navy

"T2J"

North American Jet Trainer

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Powered by "Double-50" PSST Engine

22-1/2" Wingspan — 5/8" Scale — 23-3/4" Overall

KIT FEATURES:

- Plastic Canopy
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- Full-Size Detail Plan
- PSST "Double 50" Engine

$3.95

Kit No: 24-6

FOR THE COX "PEE-WEE"

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"TIGERCAT"

ducted fan jet

This model of Grumman F-11-1F "Tigercat" provides newest form of model propulsion for the first time in .020 power. Actually as the size of the engine is decreased, the thrust becomes proportionally higher, giving this model greater performance. It can be flown either free-flight or tethered.

$2.95 Including Impeller Fan

Kit No: 24-8

KIT FEATURES:

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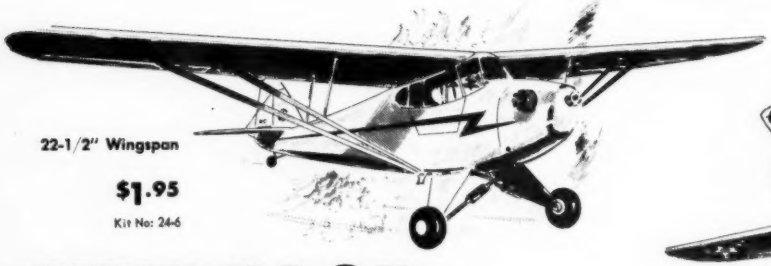
- Decals
- Die Cut Balsa
- Aluminum Impeller Fa
- Full-Size Detail Plans

25" Overall



22-1/2" Wingspan

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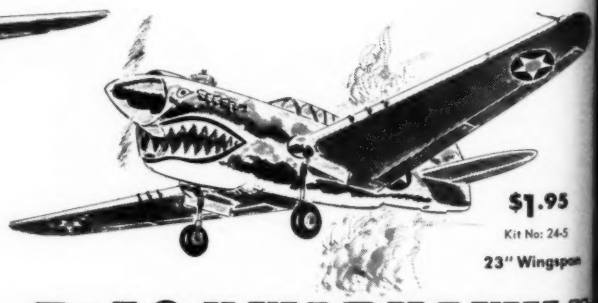

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